

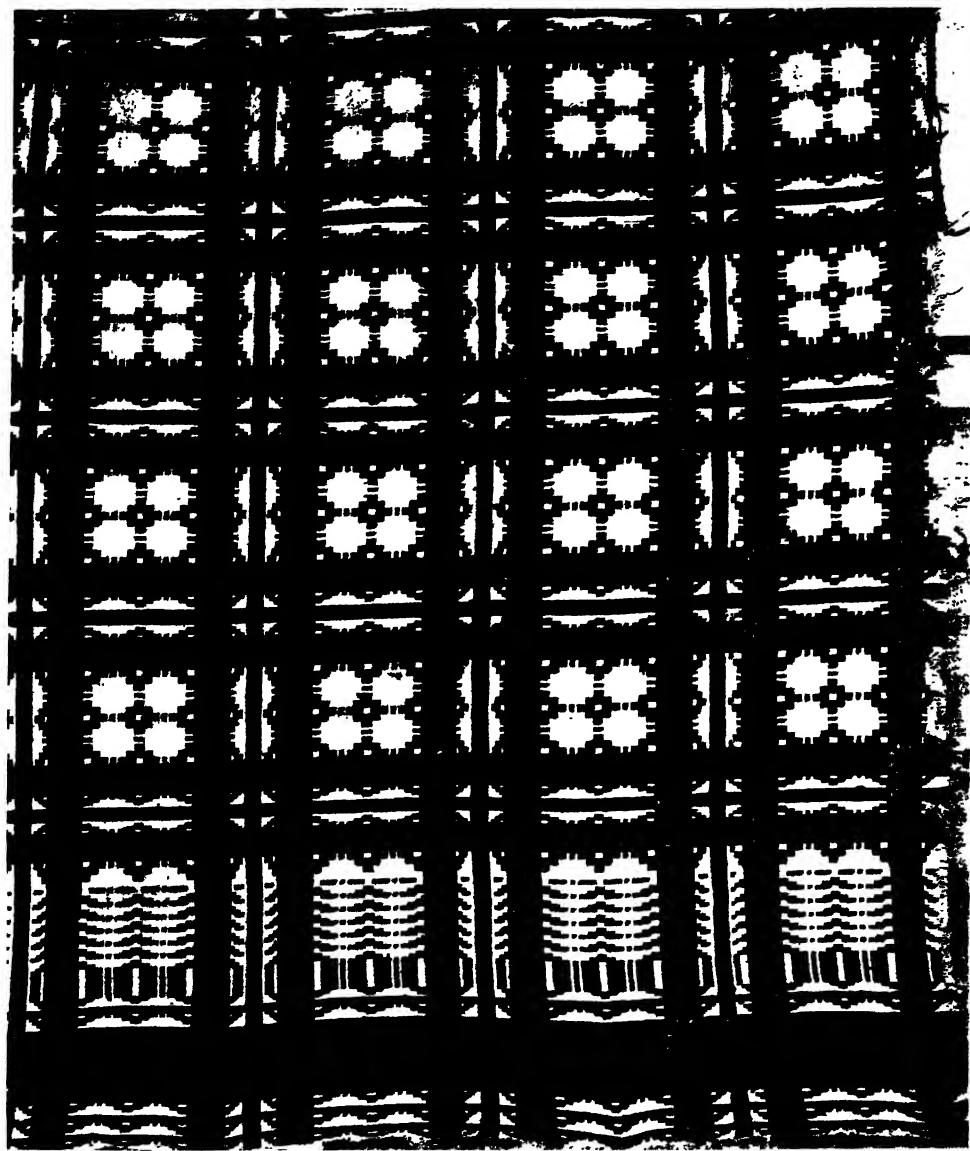
THE SHUTTLE-CRAFT BOOK OF
AMERICAN HAND-WEAVING



THE MACMILLAN COMPANY
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MACMILLAN & CO., LIMITED
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THE MACMILLAN CO. OF CANADA, LTD.
TORONTO



"Our American textiles are beautiful in themselves."

(1) Double-woven coverlet in three colors, from the Boston Museum of Fine Arts.
Pattern, Double Snow-Ball with Pine-Tree border. See draft number 235.

THE SHUTTLE-CRAFT BOOK OF AMERICAN HAND-WEAVING

*Being an Account of the Rise, Development, Eclipse, and
Modern Revival of a National Popular Art*

*Together with Information of Interest and Value
to Collectors, Technical Notes for the Use of
Weavers, and a Large Collection of Historic Patterns*

BY

MARY MEIGS ATWATER

WITH ILLUSTRATIONS

New York
THE MACMILLAN COMPANY

1928

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FOREWORD

A TRUE national popular art—shaped by the necessities and colored by the dreams of a whole people—is a deeply touching and a very precious thing.

We in America are a young nation, but there have been years enough for a true national popular art to grow up among us, to develop characteristic forms of beauty, to flourish greatly, to languish, and finally to be revived. There is now no danger that it will ever become a lost art.

The following pages are dedicated in loving gratitude to the unnamed artists of America's early day, and are offered to the new craftsmen of America's great present in the hope of adding a little to the general appreciation of a fine and a beautiful thing.

MARY M. ATWATER.

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PART ONE

AMERICAN HAND-WEAVING

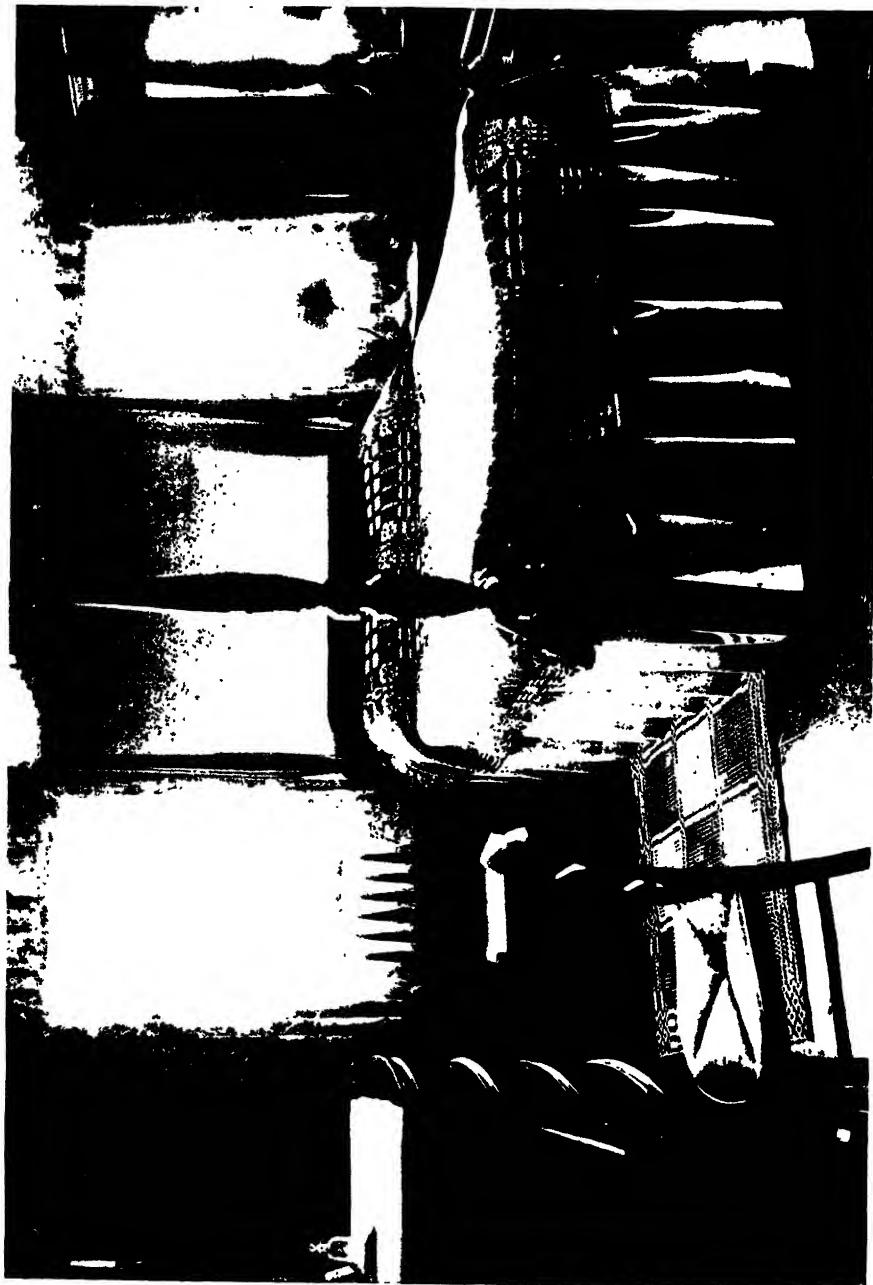
CHAPTER ONE

ORIGINS AND DEVELOPMENT

THE art of weaving is a very old art indeed. It had its beginnings in the twilight time before history began, for man has been a weaver ever since he has been man—and perhaps longer. It may well be that the weaving instinct in the hands and brain of some less than human ancestor of the human race has had much to do with the fact that man is man and not some different creature.

Weaving is so old that in fundamentals it is the same in all parts of the world, so old that nothing really new has come to it for hundreds of years. The gossamer linens of ancient Egypt, fine enough to be drawn through a finger-ring, are finer than anything we make to-day; nothing more gorgeous than the old brocades of the East will probably ever be woven; our great machines of to-day produce nothing that could not be made long, long ago without their help. And still it is a living, growing art, always ready to meet man's new needs in new ways.

Though everywhere the same in principle, during the long ages of its existence weaving has developed minor differences and special excellencies here and there, conditioned by the way of life of national groups,—each type with a logic and a charm of its own. For Americans there is, naturally enough, a quite special interest in the native American forms of the art—not only because of association and sentiment, though these are precious, but because our American textiles are beautiful in themselves and because, too, they fit us and express us as no other can; they look well in our houses, match our temper and our minds, and are somehow "right" for us.



"Our American textiles fit us and express us."

(2) The coverlet on this old four-post bed is a modern piece of hand-weaving in the Twenty-five Snow-Balls pattern. The rug is in the Sunflower pattern.

American weaving derives from much more ancient forms, brought to the New World by the early colonists,—by the Dutch of New Amsterdam, by the Mennonites who settled in Pennsylvania, by the Scotch who took up land in the South, by the Irish who came to New Hampshire, and by the English Puritans of New England. Our art like our people comes of mixed ancestry.

In rural England, at the time when the Mayflower set sail upon her amazing adventure, weaving was a household function, as it had been from very early days. Every homestead was a textile factory, and as one historian puts it "cloth was a by-product of agriculture."

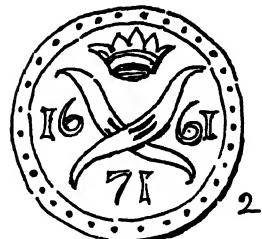
In the cities, to be sure, the thing was more complex. Here specialized groups devoted themselves each to one particular branch of cloth-making, and were banded together into craft guilds. And very powerful and very despotic these ancient societies became so that finally they encroached too much on public liberties and were suppressed. Some of them have, however, actually lived on into our day, though in a very pallid and enfeebled form.

The guild of the weavers is believed to be the most ancient of all the English guilds. Its exact age is unknown, but mention of its activities is made in a document of the year 1100. Very little is definitely known concerning the practice of the art in those highly antique times, but shuttles and looms as shown in ancient pictures were much like the looms and shuttles of to-day.

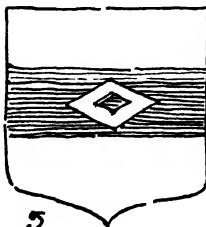
The first textile factory in England was the one established at Winchester by the Romans for the weaving of cloth to clothe the Roman army of occupation. The ancient Britons appear to have relied for clothing chiefly on the skins of animals, and on the blue dye of woad with which they smeared their bodies. No doubt they took kindly to the greater comfort of woolen cloth.

The making of woolen cloth was England's first great industry. It was a certain Jack of Newbury who invented the stout fabric known as broadcloth, and made it on the hundred looms he is said to have had in his house, in the year 1327. These great looms were so wide that a weaver must stand on either side of the broad web in order to pass the shuttle back and forth.

A little later there was the famous Thomas Cole of Reading who "made great quantities of the most excellent cloth which he sent up to London on waggons, so many that they crowded the road." What sort of cloth it was, the old account fails to mention. It may have been "fustian" such as was



"Weave Truth
With Trust"



1. Belgian
2. Dutch
3. Weavers Guild of London

4. Belgian
5. French
6. Flemish

Insignia of Weavers' Guilds

worn by the gentle knight of Chaucer's Canterbury Tales, or perhaps a "double worsted" like that of the good Friar's gown as he traveled along in company with the knight. And these fabrics were probably not very different from the fustian and double-genoa made centuries later in the first American textile factory at Rowley.

The name of Thomas Blanket will live on down the ages as long, certainly, as that of the immortal Shakespeare. And why should it not? Which after all has made the greater gift to humanity? On cold winter nights the answer would be easy.

Fine silks and flowered and figured textiles as intricate as the most elaborate modern webs were made in very early times on the wonderful loom called the draw-loom. This loom, invented in China so long ago that its origin has become myth, was introduced into southern Europe very early in the Christian era, but did not reach England till some centuries later. It is written, however, that in the year 1573 John Tice of London, a weaver of note, "had attained to the perfection of making all sorts of tufted taffeties, cloth of tissues, wrought velvets, branched satins, and other kinds of curious silk stuffs." This sentence from an old book is like a bright little window opened on the life of a time long gone by. No doubt the worthy John was a personage of renown and a man of substance in his day, and no doubt many fine ladies and magnificent cavaliers came to him to leave orders for the gorgeous stuffs of their court-costumes. His loom, for such elaborate weaving, was certainly a great draw-loom,—a maze of thousands of linen cords, with its complicated "simple," and its hard-working draw-boy. See John himself enthroned on the high bench, shuttle in hand,—a wizard practicing his wizardry!

The old day, like our present, was a time of enterprise and progress. In the year 1575 stout Morgan Habblethorne, a master-weaver, was sent by his guild on a journey to distant Persia to learn at first hand the Eastern art of carpet-making. A great adventure that must have been. We do not know what knowledge he brought back to his fellow craftsmen, nor indeed whether or no he ever returned at all.

But though weaving, as we see, was a highly developed art in England long before the Puritan exodus to America, the first American weaver was no John Tice, no skilled master weaver. The Puritan settlers were from rural

communities, and the first weaver in America was probably some "Dame Marjory" or "Mistress Priscilla," stepping ashore on Plymouth Rock in the year 1620—a country housewife whose weaving was of the rude cottage variety. Fortunately so. An art to be a true national and popular art cannot be the art of experts; it must be a simple art produced by simple means and by artists who lack the specialized training for mastery.

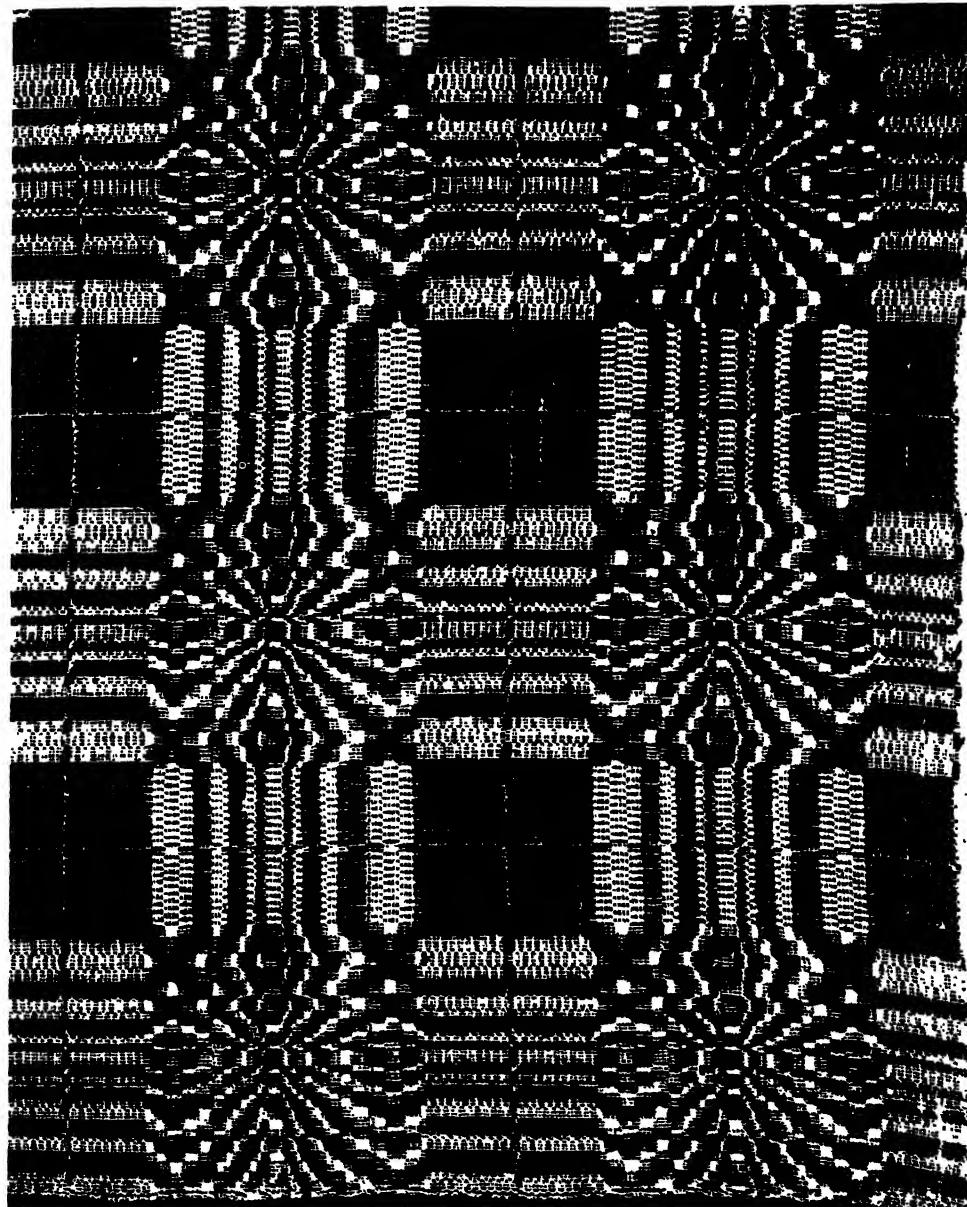
It was in 1638 that a certain Master Ezekiel Rogers established at Rowley, not far from Ipswich, Massachusetts, the first textile factory on American soil. Twenty families of cloth-makers were brought from Yorkshire and settled in the place. They were, an old account declares, "very zealous and thrifty, and caused their little ones to be diligent in the spinning of cotton-woole." At Rowley, too, a few years later, John Pierson built a fulling mill for the finishing of woolen cloth—a mill that is known to have been in active operation as late as 1809.

The output of the Rowley industry was in the main cloth for clothing—"fustian," sometimes also called "thick-sett," which appears to have been the fabric we call corduroy, together with twilled cloth or "tweeling," "jean," "doornock," "linsey-woolsey" and the like.

The second textile factory in America was probably the one established in Philadelphia by William Penn himself—"in a house rented at forty pounds a year, at the southwest corner of Ninth and Market Streets." Somewhat later a linen factory was set up in New York, in a loft overlooking the harbor, and still later a company of linen weavers came from Ireland and settled in New Hampshire. There were also settlements of weavers in Rhode Island and elsewhere. But till after the Revolution the chief output of textile fabrics was from the household looms of the homesteads.

One of the chief problems encountered by the first American weavers was the difficulty of obtaining a supply of raw materials. Cotton could not be grown in New England, and though it was planted in the South in very early days it was not grown in commercial quantities till after the Revolution. The early supplies of "cotton-woole" were imported from the Indies.

Wool came from Balboa or Malaga. Sheep were being raised in the colonies, but not in sufficient numbers at first to supply the need, and England had put a strict embargo on the exportation of raw wool—preferring extension



(3) Sunrise coverlet in two shades of brown. Boston Museum. See draft number 102.
This is one of the most ancient of American patterns.

ment of the market for her finished product to development of the infant industry of the colonies. This selfish and shortsighted policy on the part of the mother-country no doubt contributed heavily to the resentments that finally resulted in the War of Independence.

In fact the spinning-wheel deserves a place among the honored emblems of our freedom. The colonies fostered and encouraged in every way the planting of flax. Free seed was distributed, subsidies were offered, and free schools were opened for the instruction of the younger generation in the art of spinning. It became an act of patriotism to spin, and in Rhode Island and probably in other colonies women held all-day sessions of spinning. Doubtless other youngsters than those of Rowley were "caused to be diligent" at the work.

Patriotic brides were married in native fabrics; the class of 1768 at Harvard College earned praise by electing to receive its degrees while clothed in cloth of domestic manufacture. Independence was in the air.

There were at the time of the Revolution a number of textile factories in America. These were, of course, not like modern textile mills—places of clanking machinery and of quantity production. They were lofts or houses filled with looms that were much like the hand-looms of to-day and of the Middle Ages, each loom manned by an operative who opened the sheds, threw the shuttle, and banged with the batten for each "pick" or "lay" of the new cloth.

Every homestead was a textile factory, and all members of the household worked at times at the textile trade. The youngest children wound cops and bobbins for the warping creel and the busy shuttles; older children carded and spun; the housewife leaned for long hours over her steaming dye-pots, and even the goodman himself often worked at the loom—especially during the long winter months when his heavy labor on the land was at a standstill. It was among these "domestic manufacturers" that our American art of weaving developed its typical forms and its amazing variety of patterns.

The Revolution marks the end of an epoch in American weaving—not so much because of the war and of the political changes that followed it as because about this time power machinery for spinning and weaving began to displace the ancient hand-looms and spinning-wheels.

As early as 1730 a young man named Kay—in England—took out the first patent on a machine for “twining and dressing thread.” His invention was not hailed with delight by the industry he expected to benefit. In fact he found himself treated as an enemy of society and was driven from place to place by the persecutions of outraged workmen. He finally turned over his machinery to the poorhouse, where it was operated by the inmates, and he himself died in poverty in France.

But of course nothing could prevent the great industrial changes that were about to take place. The age of machinery was at hand.

The first really practical spinning-machine—the “spinning-jenny”—was invented by a poor and ignorant workman named Hargreaves. He patented his invention in 1770, superseding patents taken out many years earlier by Arkwright.

It is natural that spinning by machine came some years before machine weaving, for spinning was by far the most laborious part of cloth manufacture, and the processes involved were much simpler than the processes of weaving. A hand-weaver can produce from one to eight yards of fabric a day, the yardage depending on the fineness of the cloth as well as upon the skill of the weaver. About eight spinners were required to keep one weaver supplied with yarns.

The first spinning-machines made an inferior thread that could be used for weft or woof but was too soft for warp. Even so, the saving in labor was very great.

It was long years, however, before spinning-machinery found its way to the United States. The patents were jealously guarded, and although a number of efforts were made to smuggle models out of England these attempts were always discovered and frustrated. A set of models cast in brass was to have been shipped to France and from there to America, but was seized and destroyed. Finally, however, a model of wood was constructed and this, after being cut into small pieces that were shipped separately to France, did finally escape the vigilant guards and safely reached Philadelphia. Soon after that spinning-machinery was in general operation in the new republic.

Of course it was a question merely of time when power would be harnessed

to the business of weaving cloth as well as to the spinning of yarn. The actual impulse and invention came about in an amusing way.

There lived in England in the year 1784 a certain Dr. Cartwright who was a scholarly man and a minister of the gospel. He was a friend of the poet Crabbe and had published a legendary poem of his own—"The Armada and Elvira." Besides being a poet he appears to have been a person of great persistence, and it is quite probable that his friends and neighbors sometimes dubbed him stubborn. This personage chanced one afternoon to be taking tea in a public-house where he became interested in the talk of two Manchester merchants seated at an adjoining table. It appeared from their discussion that the textile industry was in a distressingly disturbed condition owing to the introduction of spinning-machinery; the machines, they said, were producing yarns at such a prodigious rate of speed that the weavers were swamped, large stocks of spun yarn were accumulating with an unsettling effect upon prices.

The learned doctor remarked, casually enough, that the obvious remedy would be to harness looms as well as spindles, and to weave by machinery.

To the Manchester gentlemen who were familiar with all the intricacies of the weaving craft this appeared the absurd and impractical notion of a poet. Weave by machinery, indeed! Preposterous! They were at some pains to explain to Cartwright just how foolish an idea this was.

If they had shown less heat or more tolerance the invention of weaving machinery might have been delayed for years, and certainly some other than Cartwright would have had the honor; but as it was, the more the Manchester men derided and ridiculed the notion the more hotly the good clergyman defended it. He had the advantage in this, that his imagination was untrammeled—he had never seen a loom in operation and knew nothing whatever either of weaving or of mechanics.

Cartwright went home from this encounter thoroughly convinced by his own arguments that weaving by machinery was practicable, and determined to demonstrate the soundness of his ideas. He caused a loom to be built by the local carpenter and blacksmith, and when it was finished the thing actually made cloth after a fashion—which was a sort of miracle. In 1785 Cartwright took out a patent on his invention, and then—but not till then—gave himself the trouble to examine a loom, and to observe a weaver at work. What he

saw caused him to modify some of his ideas. He went home again and spent some time experimenting with his loom, improving it in many ways, and in 1787 he took out his final patent.

Cartwright's first loom was not, strictly speaking, a power loom at all, but was what we know as an automatic loom. The shed was changed and the shuttle thrown by the action of the batten or "laith" in the hands of the weaver. Looms of this type are manufactured to this day for use in the rug-weaving trade.

Later, power was harnessed to the loom. It is said that the power plant in Cartwright's first factory consisted of a bull!

A handbook of weaving published in Utica, New York, in 1818 makes derogatory mention of automatic looms, which are called "new-fangled," and said to be "too complicated for ordinary use." The old-style hand-looms, according to this work, "are demonstrated as more satisfactory, both for factory and domestic weaving." Amusing shortsightedness in the light of what was so soon to happen!

In 1826 the first Jacquard loom to be brought to the United States was set up in Philadelphia. Power weaving was still in its infancy, and the first Jacquard looms—such as the one on which the famous La Tourettes wove their elaborate coverlets—were probably of the automatic, fly-shuttle type, and may even have been operated by hand. However, power was soon added and the day of modern weaving had begun.

Not that there is anything very modern about the Jacquard coverlets of the middle of the nineteenth century—they are no more modern than antimacassars, Mansard roofs, and iron stags on the front lawn. And with their screaming eagles, scrolls of patriotic sentiments, portraits of Washington, all surrounded by the quaint roofs and towers of the "Boston Town Border," they are American enough in all conscience! But the art of them is not the old simple and austere geometric household art. Somehow the old poetry is lost.

The housewives of the period, however, no doubt considered the product of the Jacquard loom a much more elegant thing than their own handiwork. They took down their old looms and stored them away in haylofts or garrets to lie forgotten for the next hundred years, and carried their beautifully dyed



(4) Early Jacquard weaving. Boston Museum of Fine Arts.

homespun yarns to the weave shop to be turned into an "E Pluribus Unum" coverlet with name and date woven into the corner.

In color and texture many of the ancient pieces of Jacquard weaving are charming, thanks to the madder and indigo of the home dye-pot and to the fineness and softness of the hand-spun yarns. Sometimes, too, as in the example from the Boston Museum, the patterns are graceful and lovely, but more often, alas, they are hideous, grotesque, and altogether regrettable.

The Jacquard loom, though it killed for a time our American art of weaving, is a very wonderful machine. Any one who is interested in weaving will find it well worth while to visit the nearest textile mill and watch such a loom in operation. By means of the Jacquard machine it is possible to govern separately each of the thousands of threads in a wide warp, and the pattern possibilities are practically limitless. It can do nothing, however, that could not be done in much the same manner on the ancient draw-loom such as the one used by John Tice in the weaving of his famous "branched satins." In fact the Jacquard machine is simply an efficient mechanical substitute for the draw-boy, whose arduous task it was to draw down the cords of the simple. The inventor, Jacquard, was a mechanic in the silk-weaving city of Lyons, France, and his invention followed an earlier but impractical effort made by another Frenchman. As appears to be usually the case, the inventor reaped little profit from his invention, and Jacquard, like Kay, might have suffered want if Napoleon Bonaparte had not awarded him a state allowance—on condition that his patents revert to the city of Lyons. It is said that before Jacquard's death more than thirty thousand looms of his pattern were in operation in Lyons.

Jacquard weaving, it is safe to say, was always professional weaving. Coverlets of the Jacquard type that show a seam up the middle were woven by hand. These are rare. Most are woven full width, which indicates fly-shuttle or mechanical weaving.

CHAPTER TWO

THE DECLINE OF HAND-WEAVING, AND WEAVER ROSE

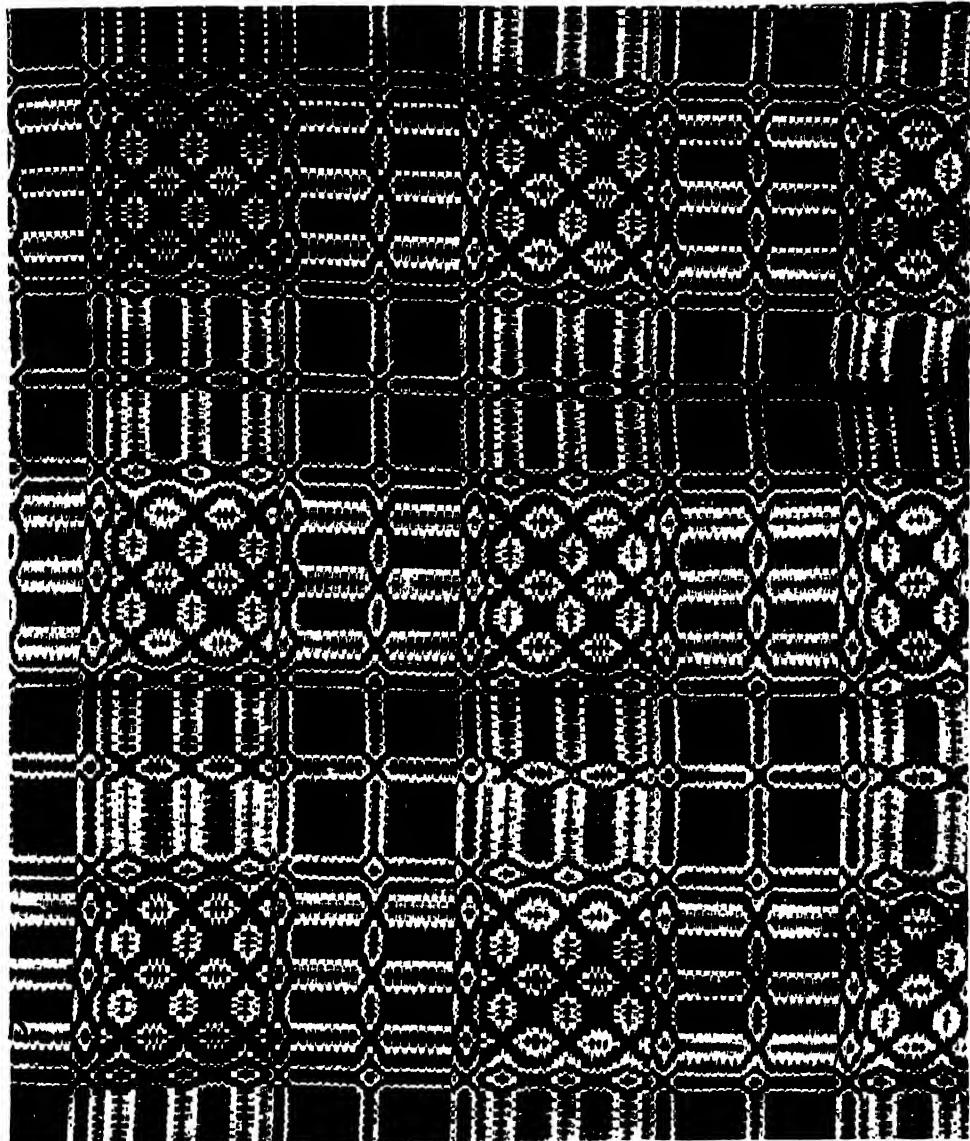
FOR many years after the introduction of machinery the old art of hand-weaving persisted, side by side with the new industrial developments in the cloth-making industry. As late as the time of the Civil War much weaving was still being done on household looms, especially in the country districts. Many excellent pieces in the simple overshot pattern weave date from this time—as witness such names for coverlet patterns as "Missouri Trouble," and "Lee's Surrender." Double weaving, however, and the summer and winter weave had almost entirely disappeared. The movement that set in was a recessive movement and the newer and more elaborate ways of weaving were forgotten first.

Between the Civil War and our own day very little hand-weaving of any sort was done. A few old women, it is true, continued to weave rag rugs on their ancient looms, but there was hardly any home weaving of the better sorts. Fortunately in some isolated communities of the South—particularly in the Kentucky and Tennessee mountain districts—the old tradition lived on and has persisted to our day. It is chiefly to the mountain women of the South that modern weavers are indebted for the old patterns that are again current among us.

In New England the craft died out much more completely than in the South. In fact it survived in only a few scattered individuals and in a single outstanding figure—"Weaver Rose" of Kingston, Rhode Island.

Weaver Rose—this last of the old-time weavers—was something of a character and a good deal of a local celebrity. Here is a word portrait taken from an article in the Providence *Sunday Journal* of some sixteen years ago:

"He is anything but conventional, as Narragansett Pier and neighboring



(5) Tennessee Trouble. Draft number 54. Missouri Trouble is a similar pattern.

resorts measure conventionality. His bare feet, his two-piece costume—with none too much care taken in the piecing—his long white hair, his shrewd eyes that supplement his infrequent and somewhat gruff speech, his constant recourse to the contents of the serviceable snuff-box which is his invariable companion, all contribute to the visitor's pleasure in the meeting."

This venerable and eccentric personage lived alone with an equally aged and eccentric sister—he never had a wife or children—in a quaint little old cottage beside the road. It was marked by large white-washed boulders set on the low wall, probably as a sign-post for those seeking the place. The huge, clumsy old-fashioned looms on which he wove were housed in a loft over an ell behind the cottage—a place where only a few trusted friends ever penetrated.

His neatly printed card announced:

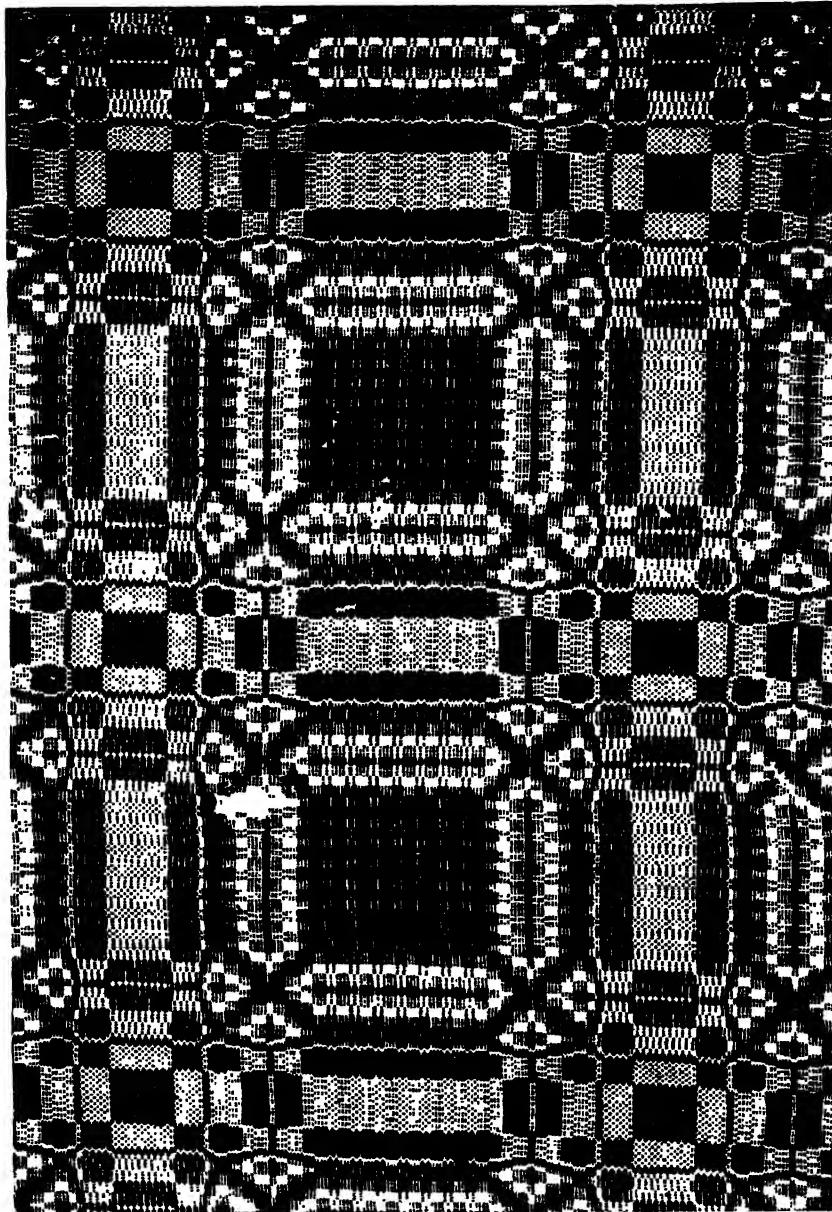
W. H. H. Rose
weaver of
RAG CARPETS, PORTIERES
Chenille mats
HAP-HARLOTS AND COVERLETS

"Hap-harlot," the great new Oxford dictionary tells us, is a very ancient word meaning "wrap-rascal," and was used for a sort of coarse blanket or coverlet.

No doubt it was the fame of his quaint personality as much as the fame of his work that drew people in flocks to his isolated homestead to buy of his wares. At any rate they came. Weaver Rose made his simple living exactly as many old-time weavers had done before him, by throwing a hand-shuttle and treading out patterns on his ancient looms.

His weaving was all of the simple "overshot" type, and many handsome examples of his art are of course still in existence. He was a famous writer of drafts and his patterns—clearly and carefully noted down on bits of coarse wrapping paper—are still being passed from weaver to weaver, as drafts were exchanged in the old day. He had the old tradition, kept it pure and handed it on. Weavers of to-day owe him much.

In fact Weaver Rose may be said to have done more than any other one



(6) Indian War. Draft number 22. (A favorite pattern with Weaver Rose.)

person toward the modern revival of hand-weaving in New England. In 1912, not many years before his death, he invited a number of people who were interested in weaving to meet at his house on Labor Day. Some seven or eight enthusiasts gathered and it was decided to form an organization. Whether or not this had been Weaver Rose's intention in sending out his invitations does not appear to be clear. The proceedings, though informal, resulted in the formation of the "Colonial Weavers' Association."

The organization did not have many meetings nor did it function very actively, but an impulse was given that was of lasting value to the weaver's art. Many of the members of that early association are still weaving, and many of them have gone out from that meeting to teach others and to carry on the great tradition.

I have before me a letter addressed to one of these people by the old master himself, enclosing a draft. There is no salutation:

I was much pleased to Receive your Picture at the Loom weaving Church Windoes a different pattern From the one i use as Near as i can see i inclose a little draft i have not used it.

'Whh Rose Kingston R I'

The draft was "Guess Me." (Pattern No. 66.)

There is no picture of Weaver Rose—he was camera-shy and no picture of him was ever taken. Toward the end of his life he became seclusive and no longer welcomed visitors. After his death his old sister lived on for a few years in complete isolation, guarding very jealously the old looms and the great store of patterns hidden away in the old house. Now she is dead, too.

But Weaver Rose's work lives on in many a fine coverlet of pleasant pattern and honest workmanship,—and many modern weavers are using patterns that came from him. A number of the patterns in this book are drafts given by him to members of his circle—carefully written and well-considered drafts they are, for he was a master-craftsman.

CHAPTER THREE

THE REVIVAL—MODERN HAND-WEAVING

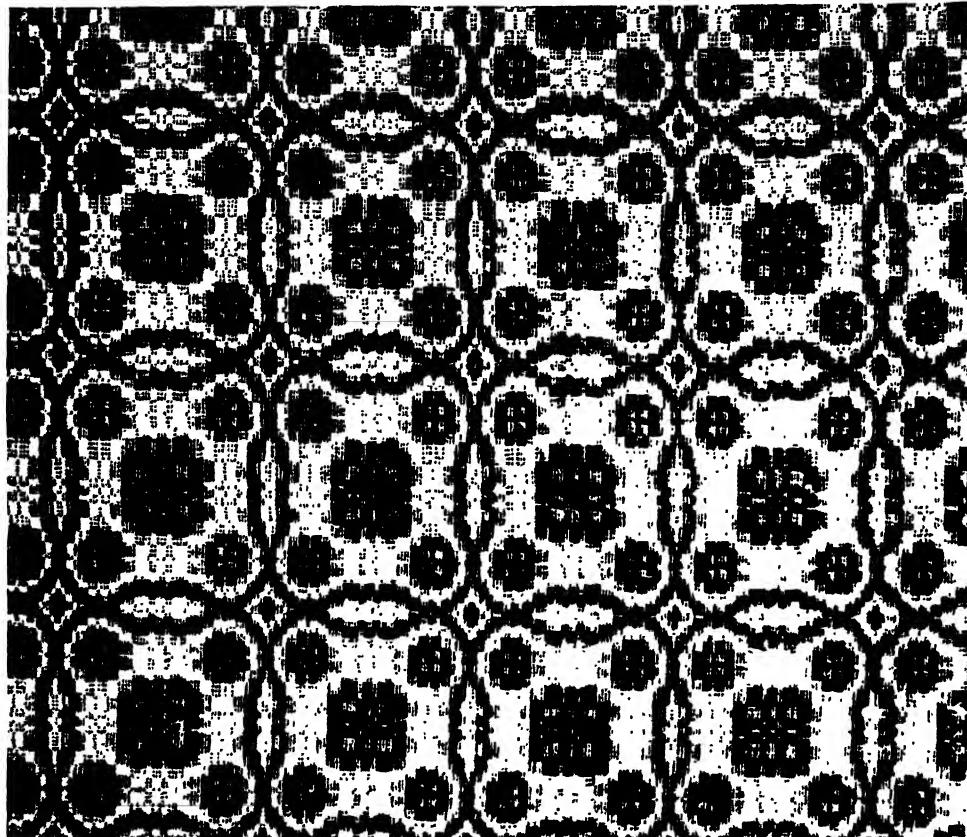
THAT hand-weaving should have returned to us in America is not nearly as remarkable as that it should so nearly have been lost during a generation or two. In the countries of Europe the introduction of power machinery caused violent social disturbances, far more serious than the sporadic rioting that marked the same process in America, but machinery never conquered the entire field there as it did here. In Europe hand-weaving continued in the country districts, and for certain types of fabrics has come down to our day not greatly changed. Velvets and brocades are still woven by hand in England by professional hand-weavers, and Scotch hand-woven tweeds and Irish linens of cottage manufacture find a ready market in America. In the Scandinavian countries hand-weaving and spinning have never been given up, and of late years have been encouraged through public agencies. I am told that the Swedish government employs skilled weavers to go about among the rural communities to instruct the cottage weavers in the finer points of the art. In Sweden, too, there are large schools that teach weaving exclusively.

Italy is encouraging the native Perugian types of hand-weaving, and much Italian work finds its way to America. In Spain a great deal of gorgeous hand-weaving is done. Russian weaving, Hungarian weaving—we know all types of hand-weaving in this country better than we know our own. To many people it may even be a new idea that we have a native American art of the loom!

The value of a native popular art can hardly be overestimated. Every normal human being has the desire for self-expression, for creative work—and to be satisfying to the soul this must be work of real tangible value; it must, too, in some way satisfy the hunger for beauty.

Untrained artists cannot produce satisfactory art in music or painting,—nor even in literature. Weaving offers a form of creative expression within the reach of any one. The work is also of definite economic value.

Modern hand-weaving has received the greatest stimulus in the South,



(7) Whig Rose. Draft number 91. (One of the most ancient patterns, known also in Europe.)

where through charitable and educational agencies it is being developed as a means for the mountain dwellers to relieve their poverty. The development is chiefly economic therefore, and a good deal of work that comes from the South is work simply made to sell—not of the highest artistic excellence.

However, some of the schools and one of the colleges in the South employ skilled weavers to give instruction, and maintain a very high standard of workmanship.

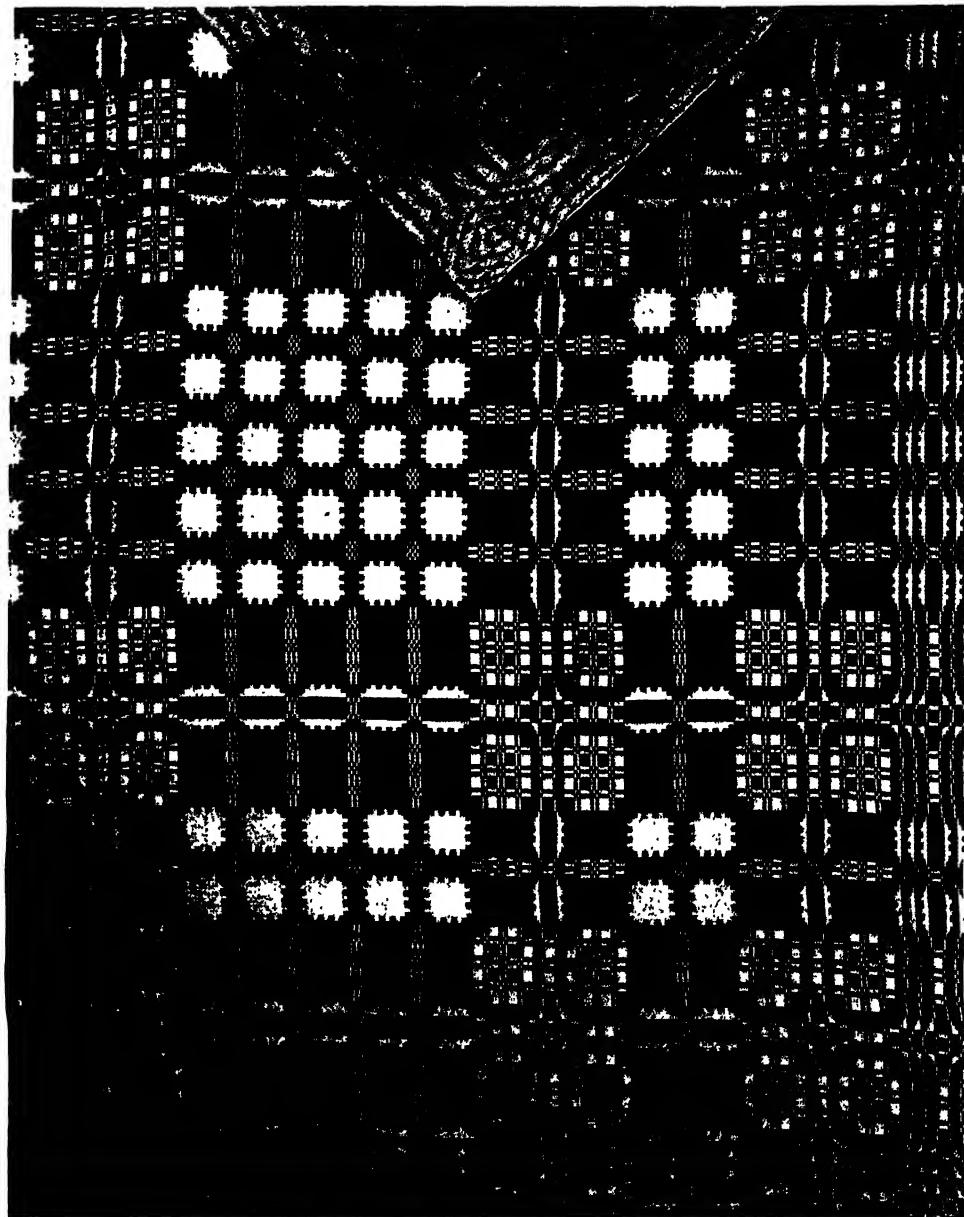
Unfortunately a number of southern weavers have become so carried away by the idea of making profits that they have introduced fly-shuttle machinery and even power looms, while continuing to advertise and sell their products as "hand-woven."

A fabric woven on an automatic fly-shuttle loom may be an excellent fabric, if made of good materials and well-chosen colors, and should have its own place in industry. However, it should not pretend to be hand-weaving, which it is not. There are differences in texture between a fly-shuttle and a hand-woven fabric—differences that may or may not be of value to the purchaser. The difference in cost of production is great, and any one satisfied to purchase "fly-shuttle" products should not pay "hand-woven" prices. A weaver can weave by hand from one to eight yards of fabric in a day's work. A fly-shuttle loom will produce thirty and more yards in the same time.

The products from Berea College are hand-woven, under the direction of a skilled weaver. The work from the Pine Mountain School in Kentucky, from the Pi Beta Fraternity School at Gatlinburg, Tennessee, and from similar schools in Georgia and Louisiana is hand-weaving.

There is romance in the work being done by these schools. The lives of the mountain women are almost unbelievably starved and miserable. The schools that give the children education and training also go out into the whole district, working to raise the standard of living of the families from which the children come. The teachers are often young women from the North who gladly devote themselves to the work, riding horseback long distances through the mountains to carry help, and the instruction that means self-help, to the mountain women.

To be sure, weaving lived on in the mountains of the South during the period when it disappeared elsewhere, but the old drafts handed down and copied and recopied by illiterate people are often very faulty, so that the work became less and less beautiful. Now with the teaching of trained weavers and with the improvements of modern equipment, the quality of the work is greatly improved.



(8) Coverlet (modern) in summer and winter weave. Pattern: Twenty-five Snow-Balls. Similar to draft number 229.

The development of modern hand-weaving in the northern states has taken a rather different course. As the development in the South has been chiefly economic the development in the North has been chiefly artistic—fostered by arts and crafts societies, museums and the like rather than by charitable organizations. Of course there are those in the South who weave purely for artistic expression, as there are many in the North weaving chiefly or altogether for profit, but in general this difference of interest exists.

Among institutions and organizations in the North that may be mentioned in this connection are the New York Art Alliance, the Chicago Art Institute, the Omaha Museum of Art, the St. Louis Museum of Fine Arts, which all hold annual exhibitions of hand-woven textiles. For the last few years the Women's Industrial Union of Boston has also held such an exhibition, called the "Craftsmen at Work" exhibition. The Needle and Bobbin Club of New York, the Boston Society of Arts and Crafts, the Chicago Colonial Coverlet Association, the Arts and Crafts Society of Portland, Oregon, are a few of the organizations actively fostering hand-weaving. The Pennsylvania Museum of Art, the Pittsburgh Art Museum, the Newark Art Museum, the Boston Museum of Fine Arts, the St. Louis Art Museum, the Chicago Art Institute and the Smithsonian Institution in Washington all have collections of colonial textiles of more or less interest.

Instruction in hand-weaving is given in many public and private schools, summer camps, and colleges in all parts of the country.

One of the most interesting ways in which hand-weaving is being used for the benefit of society is in the "occupational therapy" treatment of the sick and disabled. Beauty and the creation of beauty are comforting to the depressed and soothing to the nervous and irritable. Color and texture and rhythmic movements have great curative effect when intelligently employed. Most modern hospitals that treat chronic diseases—hospitals for the insane and sanatoriums for the cure of tuberculosis—are equipped with craft shops in which hand-looms are an important part of the equipment. Occupational therapy offers an interesting new profession to both men and women.

The people, however, to whom hand-weaving means the most are those who need creative work as a rest from monotonous duties in some other field. Women of intelligence whose household duties are not exigent and who find



(9) A coverlet in the Double Chariot-Wheel pattern lends charm to this New England bedroom.

it hard to cheat boredom with bridge and the movies can open for themselves this door into the world of art—where there is much refreshment for the spirit. Professional people whose work is all with abstractions find great comfort in co-ordinating mind and body for the making of a thing of use and beauty. And there is for most people a curiously instinctive pleasure in the handling of threads—an echo of primitive man's original endowment, perhaps.

It is a great brotherhood—the fraternity of the weavers. From Adam himself down to the new generation of young Americans coming up in the kindergarten schools, an almost unbroken line.

CHAPTER FOUR

LITERATURE

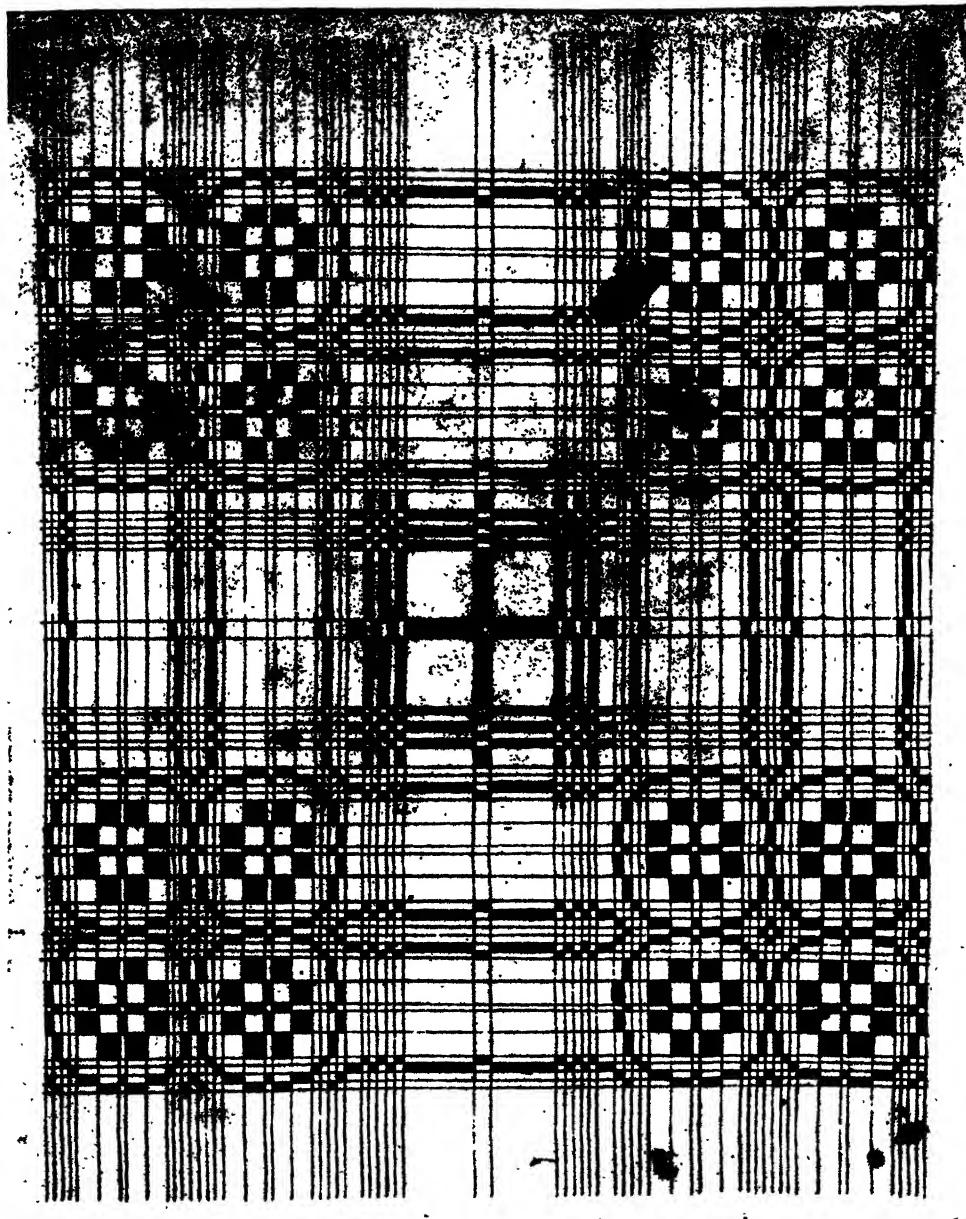
IN the search for information about our ancient art one turns, naturally, to the libraries and the museums.

The most interesting document in the somewhat meager annals of American weaving is a book of drawings by a certain "John Landes," who appears to have been a professional weaver of the period just before the Revolution. This book is one of the treasures of the Frishmuth collection of colonial relics, in the Pennsylvania Museum of Fine Arts, Fairmount Park, Philadelphia. It lies open—this old book—under glass, against a rich background made by an old coverlet so exactly like the design on the old and yellowed page that both may well have been the work of the same expert hand.

Very little is definitely known of the artist himself. He came, it is supposed, from among the Mennonite settlers and was probably one of a family of weavers mentioned in some ancient documents. He may have been one of the itinerant weavers of his period—men who traveled up and down the country with their looms on carts, stopping and setting up shop in villages or homesteads, wherever yarns had accumulated and weaving was to be done.

The book is not such a notebook as was kept by many weavers—written full of drafts, and accounts of work done and labor charged for. It is a book of designs, without technical notation, and appears to have been intended as simply a pattern book to show customers. The drawings are executed with a good deal of skill, a few being colored red and blue, but most of them simply washed in in ink. Many of the patterns are similar to favorite patterns of the day—"Lover's Knot," the "Snow-Ball" and "Whig Rose" figures—while others appear to be wholly original.

One can picture Mistress Priscilla turning the pages to find the pattern



(10) A pattern from the John Landes book of drawings in the Pennsylvania Museum

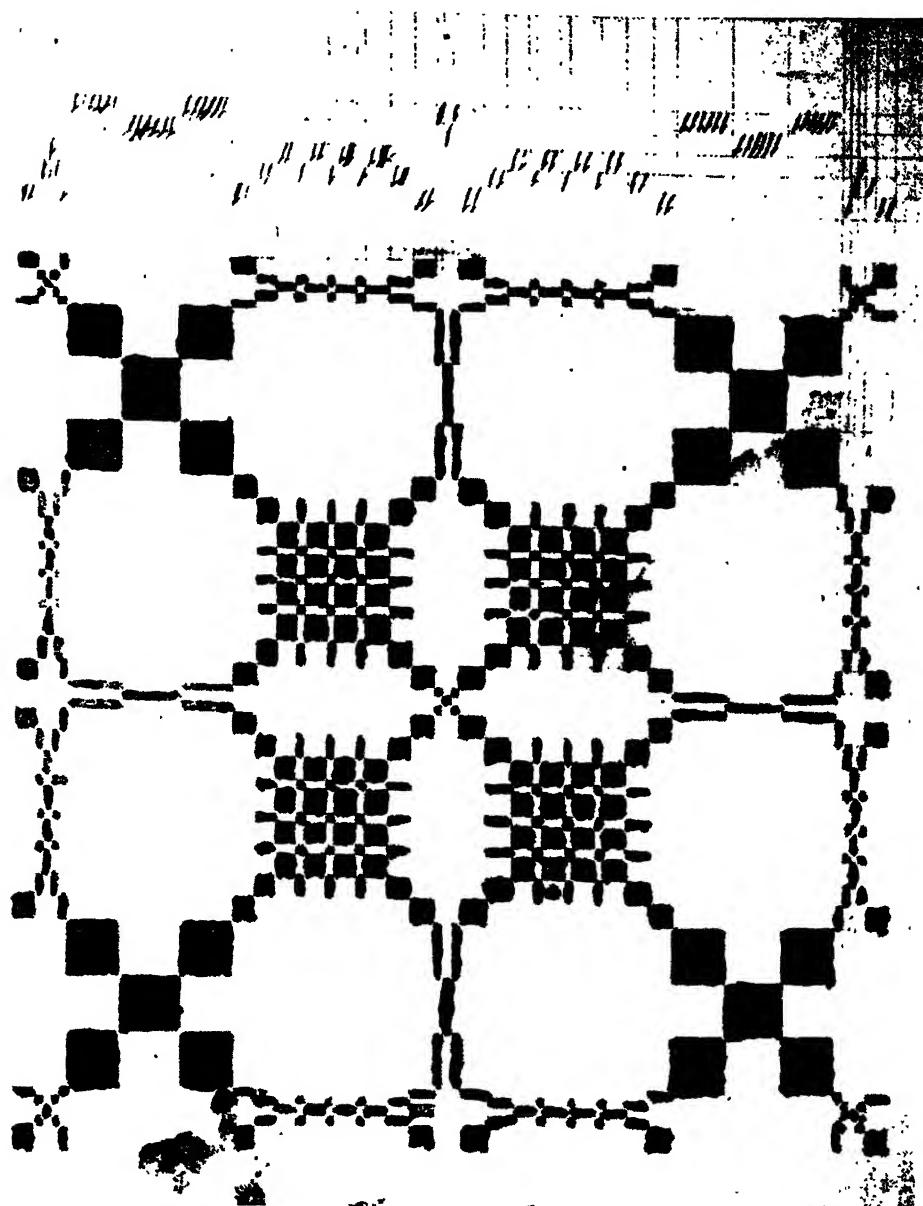
best suited for the grand new coverlet to be made of her spinning and dyeing, anxious to choose the best and hesitating among so many charming possibilities. She could hardly have gone wrong, for all seventy-seven patterns are good.

The Pennsylvania Museum is rich in treasures. It has besides the John Landes book another ancient book in which a long-forgotten weaver jotted down his accounts and kept notes of his work. It contains many patterns—"Cambridge Beauty," "Quaker's Fancy," "Double Queen's Delight"—and several statements of charges for weaving. Ten cents a yard was the charge for linen and also for flannel, twenty cents for "diaper" and twelve cents and a half for "fancy."

Similar notebooks come to hand from time to time, unearthed from among old papers and family documents. Such a one has come to me from a weaver in whose family it descended from some weaving great-grandmother. It is daintily and cleverly kept, with painstaking little drafts, notes of materials to be used, and the "sett" in the reed—often with a tiny sample of exquisite linen fabric pasted under the draft. Many of the drafts are for clothing materials such as "velveret cord, for use in boys' trousers." There is something very touching about this careful record of the work of hands long gone.

A wonderful old book of weaving patterns published in Germany in 1740 belongs properly in the story of American weaving, for it was known and used in colonial America. Several copies of this book are in existence; the one I have had the pleasure of studying was brought to the New World in 1785 or thereabouts by a certain Conrad Shurtz who settled in Lancaster County, Pennsylvania. The volume is a prized possession of a great-great-grandson of Conrad Shurtz.

The author of the book was "Johann Michael Fricker, Court Weaver"—a person (to judge by his preface and scattered remarks through the book) of pious habit and embittered spirit. The dedication by the publisher asks the blessing of God on all handicraftsmen, and prays God to give them Christian thoughts at their work. "Written in the year in which was celebrated the third Jubilaeum of the Invention of the Noble Book-Printing Art." The drawings are admirable in clearness and exactness, printed apparently from wood blocks, and the drafts are so simply written that any capable modern



(11) Draft from an ancient notebook, Pennsylvania Museum.

weaver can follow them without hesitation. The language of weaving is old and changes very little.

The most interesting of the weavers' books made in America is a priceless little treatise by "J. and R. Bronson," printed by William Williams at Utica, New York, in the year 1817. The title-page reads:

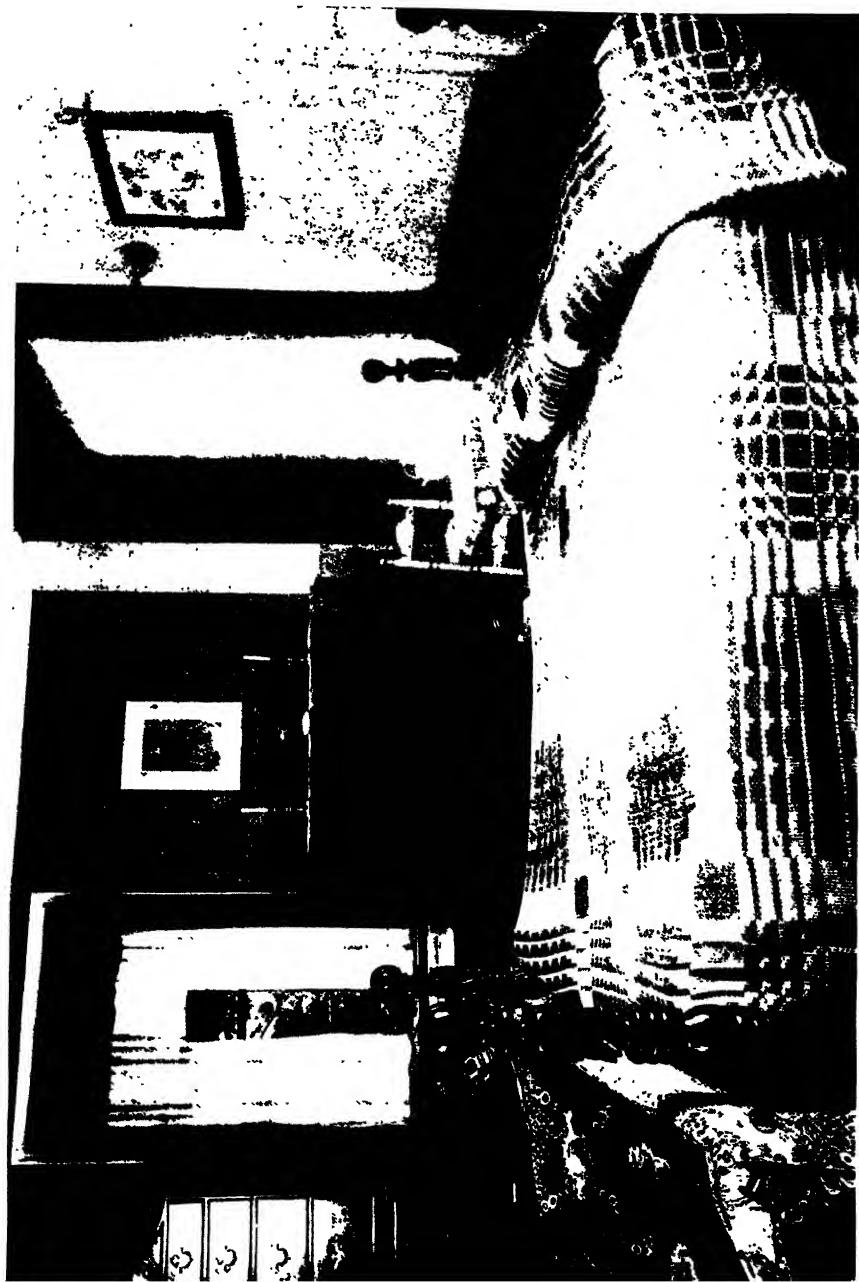
THE
DOMESTIC MANUFACTURER'S ASSISTANT
and
FAMILY DIRECTORY
in the
ARTS OF WEAVING AND DYEING
etc., etc.

and there follow tables of materials reckoned in cabalistic "knots" and "beers," together with weaving drafts—or "draughts"—detailed recipes for the dyeing of many different colors on cotton and on wool, and also many pertinent observations expressed in quaint language and peppered with amazing commas.

"Chambray," the Bronsons state, "is made from any one color, as you wish, in the warp, and also in the filling; only have them differ from each other."

And here are notes on "winding the yarn":—"This is a simple operation, but it is easy to perplex the warper by conducting it in a careless manner. This branch is generally performed as it properly should be by small children, that expense may be saved, and they frequently run the yarn on in bunches, in a promiscuous manner." Any weaver who has had the assistance of the younger members of the family can bear witness to the accuracy of the statement.

There are chapters dealing with the sizing of both cotton and woolen yarns, with the making of warps, the starching of harnesses, beaming, etc.—all in great detail. Here is a paragraph headed "Observations on Wool":—"Farmers in taking the wool from the sheep, should be careful to keep the wool together as much as possible, and to avoid cutting the harl or fibres twice, as the short wool will be wasted. In putting up a fleece it is proper to crowd it in as small a compass as possible; then throw in the edges and roll



(12) Coverlet after a pattern from the John Landes book.

it up as small as possible without tearing. In this way the fleece is kept together, so that in sorting it will be found easy to the assorter."

The art of assorting wool is next dealt with, and then the cleansing of wool—a process the ingredients of which are distinctly unpleasant.

The weaving drafts in this book are of great interest. A number of them are for the "diaper" type of weaving used in so much of the finest old linen, while others are drafts of coverlets, carpets and so on. A very complicated and puzzling form of notation was used for the tie-up and treadling, so that even an experienced weaver finds it difficult to unravel some of the tangles. There are several glaring errors in this part of the book—whether errors on the part of whichever Bronson made the drawings, or whether on the part of the printer, who at this day can say?

All in all, however, the "Domestic Manufacturer's Assistant" is a very worthy work, of much practical value to craftsmen of the present day. It is to be found here and there in libraries, and also may still be picked up now and then among collections of old books offered for sale.

A quaint work of about the same period, but far less comprehensive is "The Weaver's Complete Guide, or The Web Analyzed," by Joseph France, and published in Rhode Island in 1814.

The preface is exceedingly quaint, and part of it deserves quotation: "Tho' the generality of mankind may look on the labors of the *loom*, and indeed on all other kind of handicraft as destitute of contrivance and ingenuity, and as things which require no degree of skill to attain to a perfect knowledge of the same; my design (in part) therefore by writing this little treatise was to show the fallacy of such an opinion, and to convince the world that both skill and ingenuity are alike requisite to attain to a knowledge of the simplest kind of web." . . . This earnest and impassioned sentence ambles on through another 166 words and two parentheses before reaching a period.

The next sentence begins, "But, however, though this is a real matter of fact, with respect to the ignorance of the generality," and goes on to deal with the desirability of more knowledge of the structure of cloth on the part of tradesmen and weavers. The author declares that a weaver who is able to analyze a sample himself has the advantage over competitors in that "he is

enabled *immediately* to fit out an order, and while the rest of his neighbors are running with the patch or sample of the goods wanted from one draught maker to another, his goods are gone to market and he has the advantage of reaping the highest prices, which are the constant reward of an early sale. With equal truth does this apply to the laborer likewise, for the highest wages are given during the heat of demand."

His "draughts" are written in as labored and involved a manner as his sentiments, and are therefore not altogether easy to follow. They are the threadings and treadlings for various fabrics used for clothing, with names that sound strange and stuffy. "Single Jean" or "Genoa" appears to be a three-harness twill. "Double Genoa," is a two and two twill. "Thicksett" and "Fustian" are the same thing—corduroy, apparently. He gives a "Genoa-back Thicksett," "Little Cord Genoa," "Chambray Spot," "Vest Pattern," "Jannette," "Dice," etc., etc.

A similar book but one far more complete, published in Philadelphia about 1850, has this to say: "Fustian cloths have ribs or cords running the full length of the piece, the floats of weft are cut in the middle of each rib. Fustian cloths are made into clothing for overlookers, weavers and mill operatives generally. Velvets are usually dyed and made up into velveteen suitings for boys' wear. Moleskins are a heavy uncut velvet cloth and is made into clothing for blacksmiths, moulders, navvies and ironworkers generally." The book gives many more drafts than are contained in Joseph France's "Weaver's Guide Complete." One is noted as "Eight-leaf Diaper with 14 treads, and looks very neat in fine cloth."

A "Treatise on the Art of Weaving," by John Murphy, published in Glasgow in 1833, appears to have been more or less current in America and contains interesting matter of nature similar to that in the Philadelphia publication.

Of modern books, the most valuable to American weavers are the many excellent Scandinavian books of recent issue. The diagrams and illustrations in these books are as a rule so clear and complete that a knowledge of the language is not necessary to their comprehension. A few of the titles are as follows:

"Haandbok I vaevning," by Caroline Halvorsen

"Ny Vavbok," I and II

"Vavbok," I and II, by Palmgren

"Hemmets Vavbok," by Elizabeth Waern-Bugge

Though our American weaving is very different in effect from Scandinavian weaving, it is in structure far more closely allied with this than with the weaving of any other people. The manner of notation of the drafts, though not exactly like ours, is so similar that any practiced weaver can follow.

The English "Handbook" by Luther Hooper is a valuable and interesting work—though of little practical use to American weavers because the types of hand-weaving described are not the ones current in this country. Few of our hand-weavers are interested, in a practical way, in the making of elaborate brocades, velvets, and similar things.

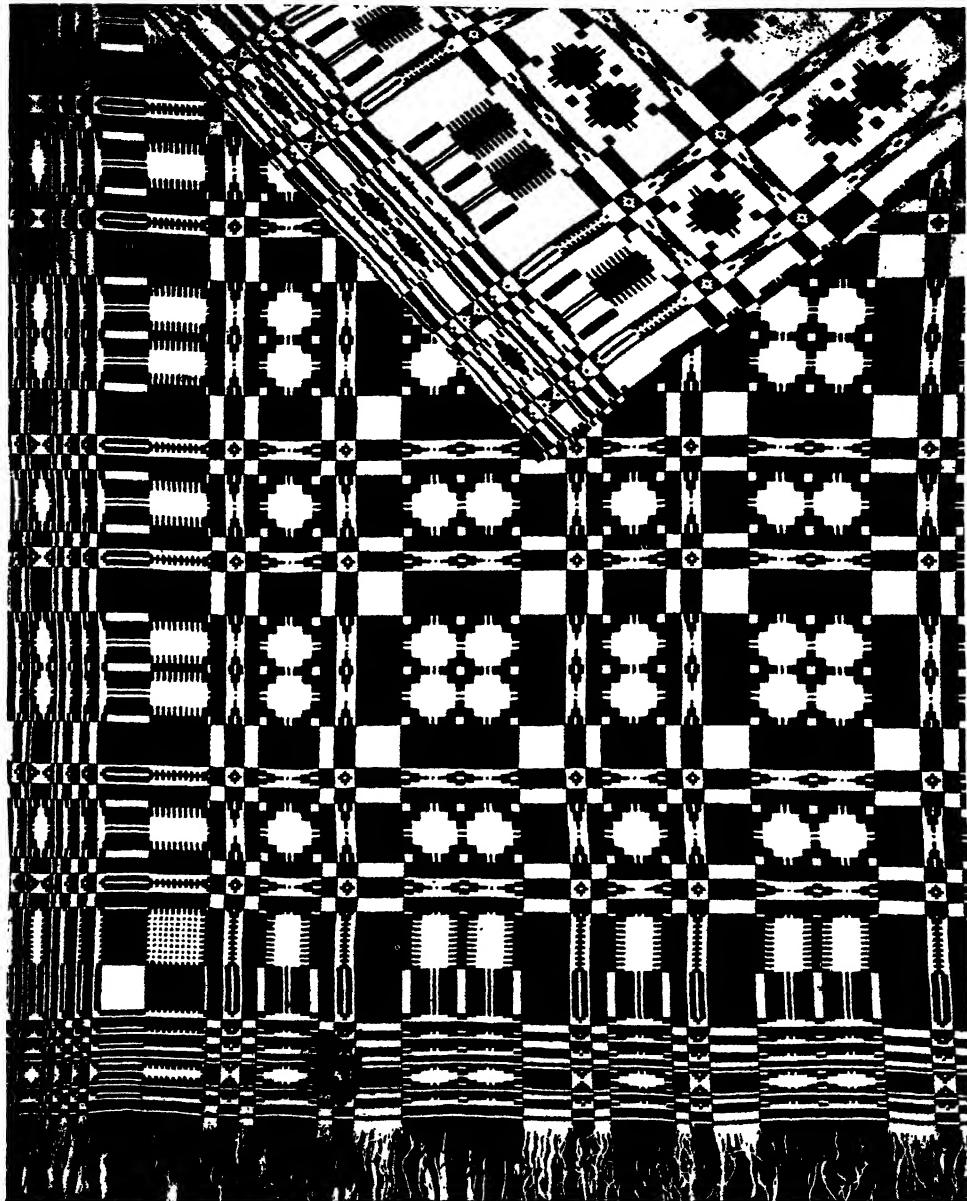
The libraries of technical works contain many books on textiles that have a certain interest and value to hand-weavers—for instance, Osler's "Dictionary of Weaves," and Beaumont's "Woolens and Worsteds." These do not deal with pattern weaving as craftsmen understand the term, but give the often amazingly intricate structure of cloth for clothing—suits, coats, and the like.

The modern literature of American hand-weaving is pitifully meager. We have besides the present work only these: "A Book of Handwoven Coverlets," by Eliza Calvert Hall—which is a non-technical, not always accurate, but interesting book with many excellent illustrations; the publications of Mr. Worst; the "John Landes Book"—a publication of the Shuttle-Craft Guild, that, with the permission of the Pennsylvania Museum, gives all seventy-seven of the famous John Landes drawings together with drafts for weaving prepared for the Guild; some minor treatises on simple rug-making intended for primary work in schools; chapters here and there in books on colonial subjects; a few scattered magazine articles. And that is all.

Eliza Calvert Hall's book is of value to weavers chiefly for the illustrations, which are clear enough in most cases to make the writing of drafts from them a simple matter. No drafts or technical directions are given.

The Worst books, also, are valuable chiefly for the illustrations.

The magazine articles are of varying value—some are exact and technical, giving patterns and drafts, while others are descriptive, historical, or "human



(13) Elaborate double-woven coverlet from Pennsylvania, Double and Single Snow-Ball pattern with Pine-Tree border. Similar to draft number 233.
(Possibly woven by John Landes.)

interest" articles of no great practical use to weavers except sometimes for their illustrations.

The Shuttle-Craft Guild issues, besides the "John Landes Book" mentioned above, a small monthly news-letter of strictly technical contents addressed to weavers only.

CHAPTER FIVE

COLLECTIONS

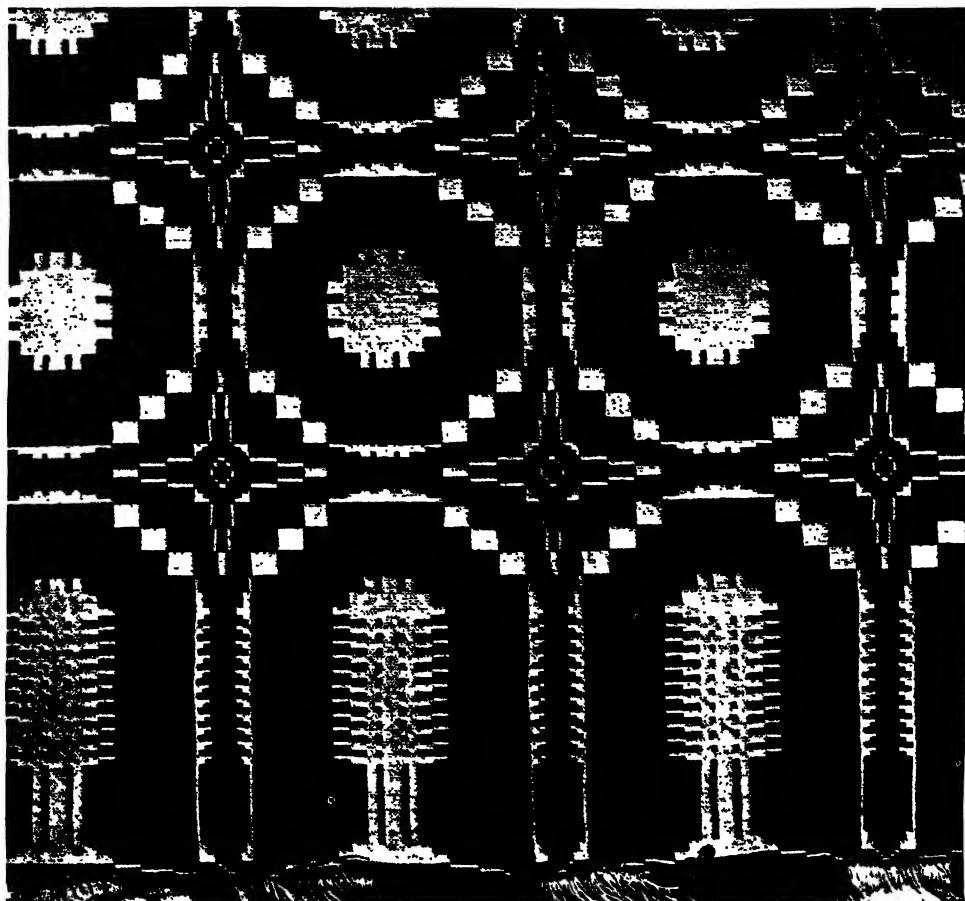
THOUGH there are more and better colonial coverlets in private than in public collections, nevertheless the art museums of the country have much to offer the seeker.

The Metropolitan Museum of New York, to which one might naturally turn first, is a disappointment. In all the great new "American wing" there is no single small scrap of American weaving, no weaving and spinning equipment, nothing. The Museum has, to be sure, an interesting old all-wool blanket in a plaid arrangement of colors and an odd little weave that well repays study. It has a good Jacquard coverlet—good, as those things go, that is—an excellent double-woven coverlet with a "Pine-Tree" border, and two or three rather uninteresting overshot pieces. These are rarely displayed, and on all occasions of my own visits to the Museum have had to be haled forth from storage—very kindly permitted by order of the head of the textile department. There are also some small samples of old linen mounted and framed in wall-boards in one of the textile study rooms. And that is all.

The Smithsonian Museum in Washington, D. C., has a collection—chiefly of small samples—that is interesting to a weaver though not to the general public. These samples—collected as a labor of love by Mrs. Laura M. Allen, one of the women members of the little group who met at the house of Weaver Rose in 1912—include bits of many different weaves and fabrics, but few finished pieces. The collection should be examined with a notebook full of cross-section paper, a pencil and a magnifying glass—otherwise it is of no moment.

The Boston Museum of Fine Arts has no great number of colonial textiles,

but the ones it has are accessible, and are well-chosen and of unusual interest. There is a very ancient "Sunrise" coverlet in brown and tan—an unusual and pleasing arrangement of this figure, badly woven to be sure, and with many

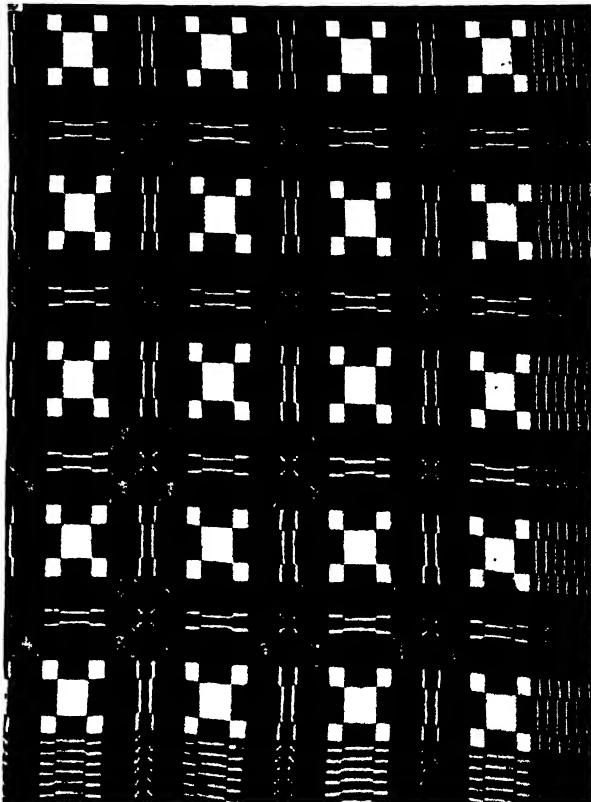


(14) Single Snow-Ball with Pine-Tree border, Boston Museum of Fine Arts.
See draft number 234.

mistakes but with much charm. There is also a very charming "Chariot Wheel" on opposites—an outstanding example of this particular refinement in draft writing. And finally two double-woven "Snow-Ball" coverlets of the utmost correctness and conventionality. These coverlets are not displayed on

the walls of the museum, but are kept in drawers in the textile study room, where they can be examined as closely as one desires.

By far the most complete and most interesting collection is that of the Pennsylvania Museum, Fairmount Park, Philadelphia, Pennsylvania. A good deal has already been said about the John Landes book and another old manuscript book possessed by the Museum. These are treasures beyond price to any one interested in American weaving. The Museum shows, besides, a large number of wonderful old coverlets, and also a very complete collection of weaving equipment—an old loom with string heddles, a reed made of split bamboo strips, reels and swifts, hackles for hackling flax, carding and spinning equipment, and a number of the quite rare little "garter-looms" on which garter-bands and ribbons were woven. A weaver can spend many days with pleasure and profit among the treasures of the Pennsylvania Museum. Coverlets in double weave, in summer and winter weave, on opposites, and in the ordinary overshot weave, old honeycomb bed-spreads, diaper-weave linens, damask, double-faced twill, all are here—many, many more treasures than there is space to display, so that a large number sleep in moth-balls and the darkness of storage.



(15) Wheel and Star, ancient double weaving,
Newark Museum. Draft number 195.

The Museum, too, is most generous with its treasures; it does many things to encourage the new interest in weaving, has held loan exhibitions of American textiles, and publishes interesting information from time to time in its announcements.

The Chicago Art Institute, though its collection is by no means as large or as complete as that of the Pennsylvania Museum, has many interesting old coverlets on display and in storage. This collection was made by Dr. Gunsaulus of Chicago, whose interest in American weaving has led to the organization in Chicago of a Colonial Coverlet Association whose purpose is to collect old patterns and foster the cult of the coverlet. The members are not all weavers.

The Art Institute's chief service to the cause of hand-weaving is through its annual exhibition of Arts and Crafts—one of the leading events of the kind held in the United States. Prizes are offered and much publicity is given the exhibition.

The Pittsburgh Art Museum possesses a very fine collection of old coverlets made a number of years ago by Mr. Wade. A few only of these coverlets are on exhibition. The Newark, New Jersey, Art Museum has a small but excellent collection and is interested in fostering the art of weaving. And this is also true of the St. Louis Museum of Art, the Omaha Art Museum, and many others.

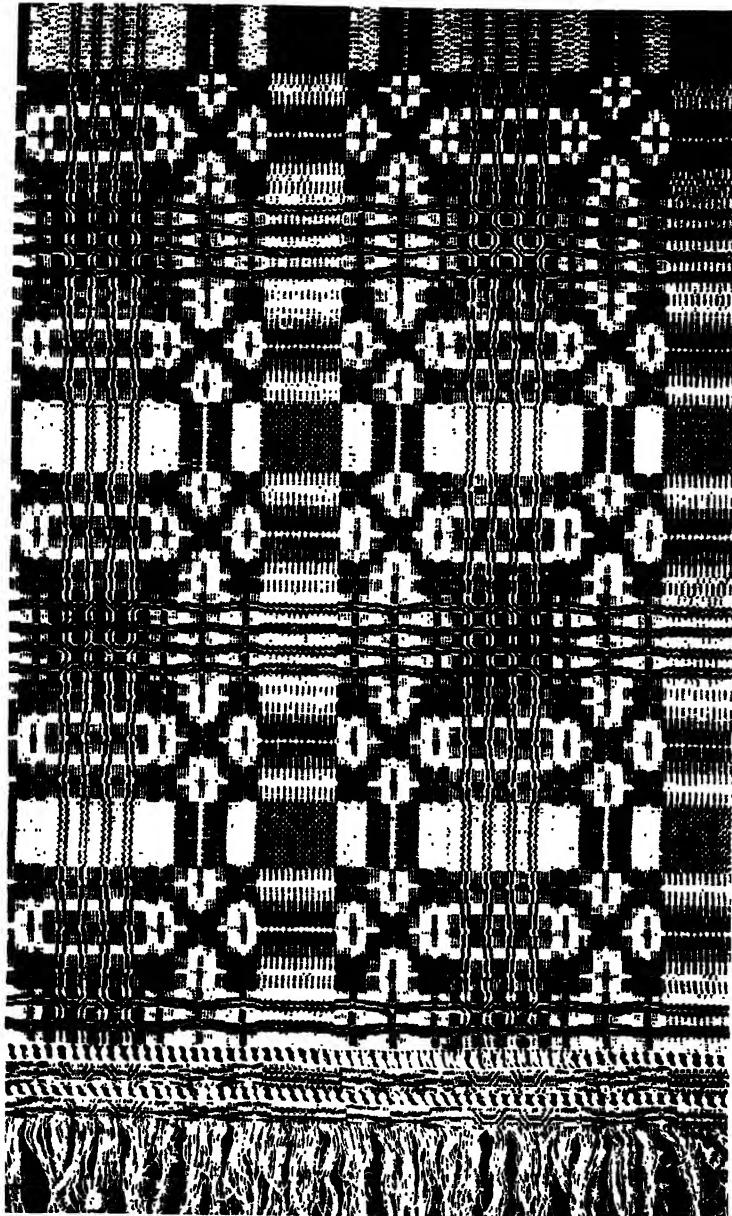
CHAPTER SIX

COLONIAL COVERLETS—TYPES AND AGE

THE most typical product of American weaving is the colonial coverlet or "coverlid"—"kivver" in the South. This is a bed-covering woven in patterns in colored wool over a plain "tabby" foundation, usually of linen or cotton in white or natural color.

The number of coverlets that have come down to us from the old day is amazing, bearing witness to the honest worth of the ancient fabric. It is pleasant for modern weavers to realize that their own handiwork—done in the same manner—will last as long, adding to the seemliness and comfort of life for the next hundred or two hundred years. The week or so of work that goes into the weaving of a coverlet seems time well spent.

Why the early weavers lavished their art on bed-coverings is explained by the conditions of life in that far-away day. Bed-places were not then as now always set apart from the living rooms, and a great four-poster might be a prominent feature of rooms where people came and went by day; therefore a covering that was slightly and protective by day as well as warm by night was clearly a necessity. To be sure it might be supposed that a plain dark-colored web would have served as well as a patterned coverlet, but whoso thinks so knows very little of the human heart. Human beings can no more live comfortably without beauty than they can live comfortably without light or warmth. There is no need to marvel that pioneers who toiled through years of hardship and danger while building the foundations of our nation nevertheless found time between labor and prayer to contrive ingenious patterns for the adornment of their coverlets. In that austere day this was one of the few outlets for the creative impulse.



(16) Ancient coverlet in rose and green. Pattern similar to Rose of Sharon. Draft number 22.

It is in the delightful coverlet patterns and in the few and quite simple weaves in which they were worked out that our American art consists.

I have known people to say, "What, use the old patterns—how lacking in originality! Why don't modern weavers make their own patterns?" Which is a good deal like quarreling with a singer who sings old songs instead of inventing new ones. There is no reason why one should not invent new patterns, but it is very pleasant to recreate the ancient ones; and just as a musician may render an old air in a cold and dry manner, or state it with deep feeling, or overlay it with fanciful variations till the motif is no more than a trellis under a flowery vine, so may a weaver render and interpret an old pattern.

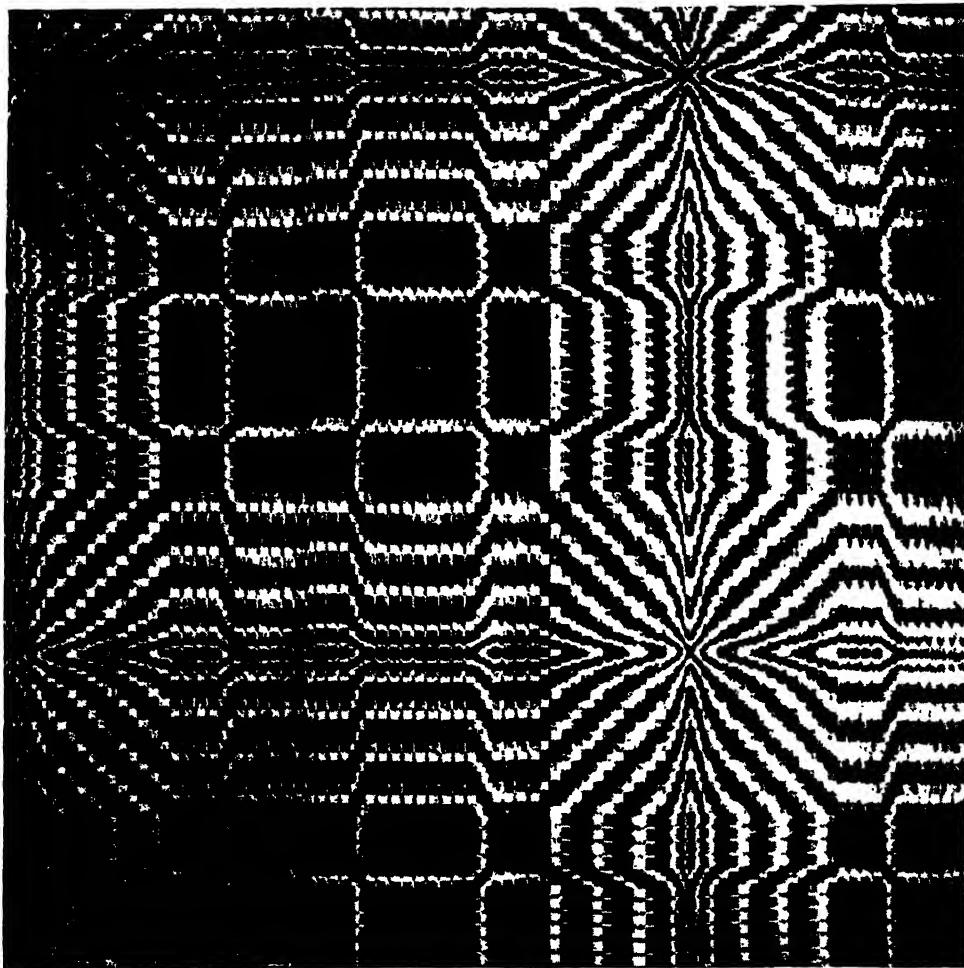
They grew as simply as daisies or frost crystals—these charming old patterns. Due to the narrow limitations of the simple looms on which they were woven they are delightfully abstract and geometric. They could not go wrong. If you take four squares, that may vary in size but within definite proportions, and arrange them how you will—beauty results. Or so it seems. Among all the hundreds of patterns it is hard to find one that is unpleasing.

It is amazing to discover the endless pattern possibilities in the arrangement of four elements. We have dainty, feminine patterns, patterns whose solid logic is clearly masculine, irrational patterns, stern and solemn patterns, prim patterns and exuberant patterns—each with its quaint name and its place in history.

Curiously, they are like music. They are like little melodies of four notes, full of runs, trills and returns. When noted down on paper they look like music, so that one feels it should be possible to play them off on a violin or to sing them. There is even a story of a new weaver who had a loom but no pattern, and in default of a draft threaded her loom to Mendelssohn's "Spring Song." It would be interesting to see the textile results. And perhaps some day an American musician will compose a "Weaver's Symphony" with "Whig Rose" or "Pine Bloom" for principal motif, and with the whirr of the shuttle and dull thump of the batten for accompaniment—embroidered all over and in and out with the weaver's thoughts, gay or sad or contemplative.

We do not know who first wove "Governor's Garden," with its rich and formal figures, nor who devised "Ladies' Delight," or "Everlasting Beauty"—

some inspired "domestic manufacturer" of the old day, who either copied the "draught" for friends or kept it a jealously guarded secret as individual nature



(17) The Walls of Jericho. Draft number 104.

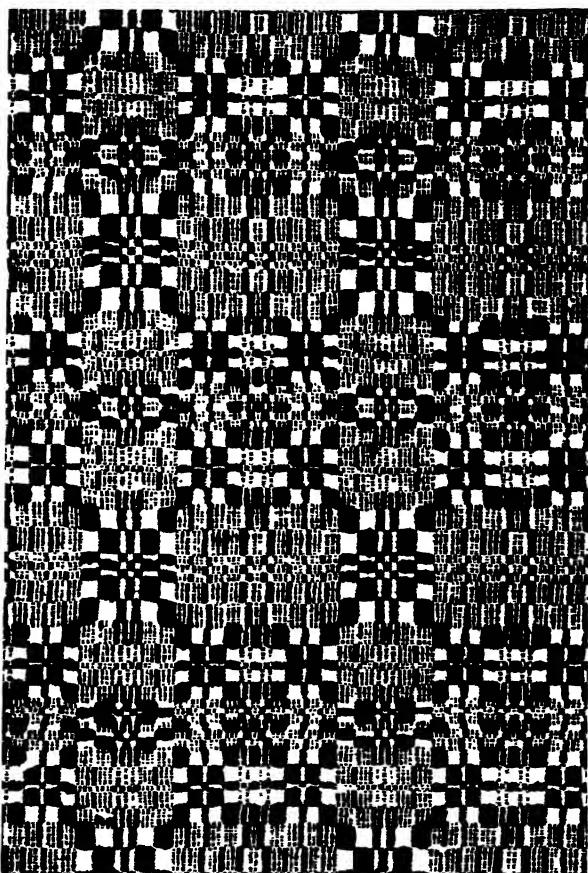
prompted. Some patterns are rare, existing perhaps only in a single old coverlet, some are confined to a particular locality, while others were known and woven wherever there were looms.

Drafts traveled from hand to hand, and were sent to far places by the

agency of the infrequent riders who braved Indian arrows and untold hardships in order to keep isolated settlements in touch with one another. They were written on scraps of paper and stitched together with careful stitches, these old "draughts"—they turn up in yellowed letters rummaged out of ancient garrets, or in old notebooks; often they were written on the backs of documents relating to other matters, for paper was precious, and were annotated in fine slanting script with a name and an old, old date. There is poetry in them.

"Pattern" and "weave" are two different things. Just as the same melody can be played on a violin or on a piano or may be sung, so a pattern may be woven in a number of different weaves. By "pattern" we mean design, and by "weave" the structure of the web.

The earliest weaving appears to have been limited to the capacity of the simple four-harness loom. Several weaves are possible on this loom, but the one that admits of the widest variations is the so-called "four harness overshot weave,"—and this is the foremost of the colonial weaves. The pattern in this weave consists of "skips" or "floats" of weft material woven over a tabby foundation. The earliest coverlets are made so, as are also most of the modern



(18) An old coverlet in the Boston Museum. (A simple pattern on opposites.)

ones. This is likely to be the weave of the treasured heirloom that is got out with pride and spread on the four-poster in the guest room on high occasions.

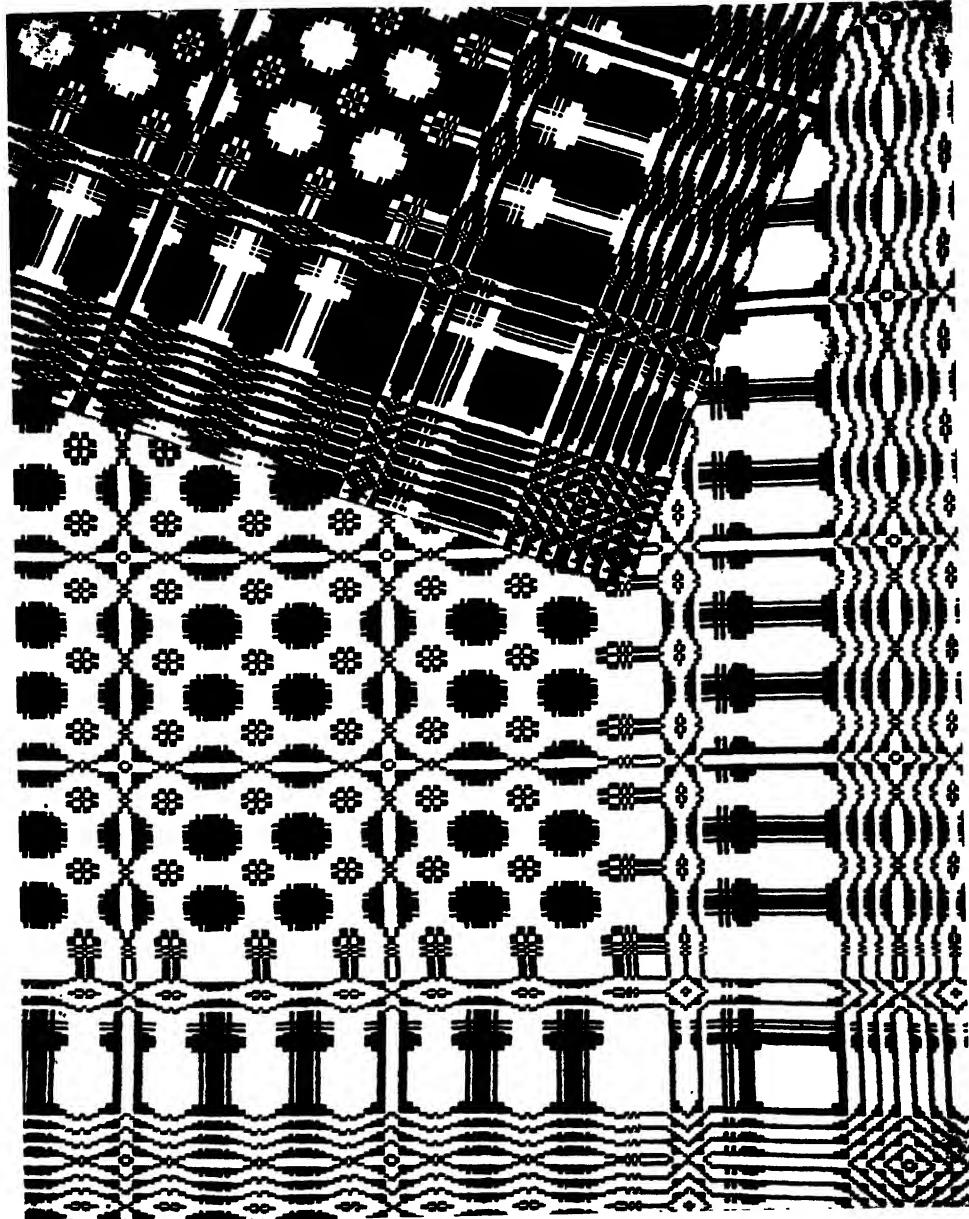
What may be called the middle period of American weaving, the century from 1725 to 1825, produced coverlets in the celebrated "double" weave and in "double-face" or "summer and winter" weave. These were woven on a much more elaborate loom than the simple cottage loom of the earlier day, but the patterns of the simpler weaving were—many of them—carried over into the more complicated technique. American double weaving was probably in great measure due to the work of skilled weavers among the Pennsylvania Mennonite settlers, and no doubt the German weaving book brought over by Conrad Shurtz and others had a good deal to do with its introduction. Certainly the most numerous and the finest examples of this weave are to be found in Pennsylvania.

An amazing amount of nonsense has been written and believed about double weaving. It has been called a "lost art," and a great mystery has been made of it. But modern English and Scandinavian books on weaving explain it, as does the old German book already referred to, and several drafts in this weave are given by Bronson. It never was in any sense a "lost art."

The web in this weave consists of two fabrics, one overlaying the other, and the pattern is produced by crossing the webs, which interlace only along the outlines of the figures. In the old examples the two webs were usually one of white cotton and one of dark blue wool, the pattern showing in white against a dark background on one side of the coverlet and in blue on a white ground on the reverse. Patterns woven in this way stand out with sharp definition.

Double weaving was well within the capacity of the domestic manufacturer who had a suitable loom, but was probably usually the work of professional weavers, such as John Landes and the others of his day.

The so-called "summer and winter weave" appears to be wholly of American invention. It is not shown in European books or textiles. Who invented it, or where it was first used we do not know. The Bronson book makes no mention of it. It is comparatively rare in southern coverlets or those from New England and most of the old specimens appear to come from Pennsylvania.



(19) An ancient double woven coverlet from Pennsylvania, in a Double Snow-Ball pattern with a modified Pine-Tree border. Draft number 232.

It is true that this particular type of weaving did indeed become a lost art during the eclipse of weaving. Modern weavers could find no one who knew the trick of it, and it existed only in the form of a few ancient relics and in a few old drafts written in a curious notation that meant nothing without a key.

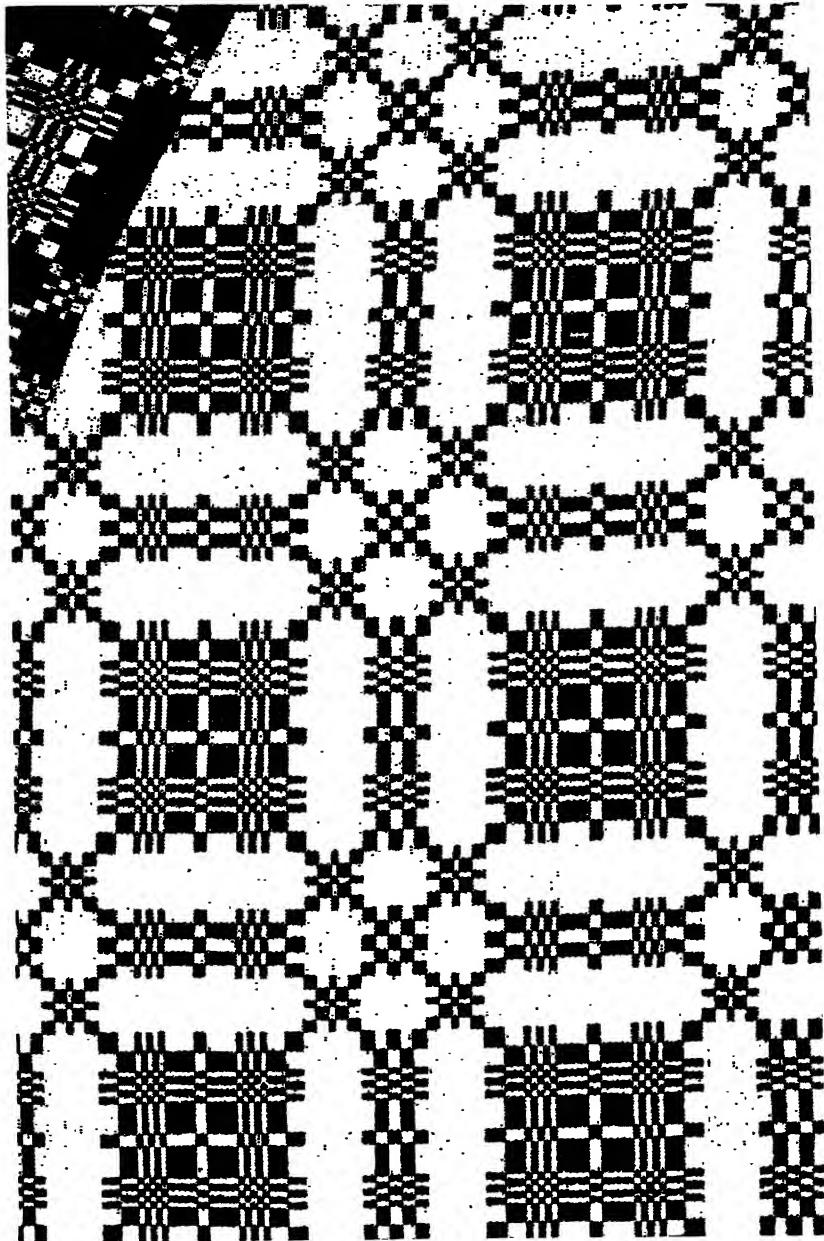
However, it would be strange indeed if one weaver could not decipher what another weaver had woven, and now again double-face weaving is a matter of quite general knowledge in the craft.

The web in this weave consists of a tabby foundation in linen or cotton woven with a pattern of wool as in "overshot" weaving, but instead of making long skips as in that weave the pattern thread in "summer and winter" weaving is closely interwoven with the ground. As in double weaving the pattern appears on one side of the fabric in color on a white ground and on the other in white on a colored ground. The same patterns may be used for double-face as for double weaving, for blocks may be of any size desired, may overlap, etc., as is impossible in "overshot" weaving.

All of this has an interest for collectors as well as for the hand-weaving fraternity, as there is an especial interest and value in the old examples of this weave.

In period this weave belongs to the middle age of American weaving, and it was apparently not used to any extent after 1825. At any rate no piece of this weaving has come under my eye that exhibits machine-spun warp, except of course the modern pieces currently woven.

In addition to the three main types of coverlet described above there are two others that are very rare indeed—the eight-harness overshot weave and an odd weave quite without a name that is characterized by diamond and star figures built up of alternate blocks, like brick-work. The Bronson book gives several drafts for the eight-harness overshot weave, so that this must have been current among "domestic manufacturers" in 1820 and thereabouts. It produces a figure in overshot skips against a plain tabby background with the intervening spaces in half-tone,—like four-harness patterns woven on opposites. The half-tone is not marked by "accidentals" as in weaving on opposites on four harness. Examples of old weaving in this weave no doubt exist, but in my own researches none have come to light. The example illustrated (Draft



(20) Mosaics. Draft number 196.

148, Illus. 95) is a modern piece. Collectors will find it interesting to watch for such pieces.

The star-and-diamond weave is not given in the Bronson book. As far as my own researches go it exists only in the old examples that appear from time to time; in a group of designs—without technical notation—made by a New York State weaver “before 1840”; and in two of the drawings in the “John Landes Book.” These two John Landes drawings are greatly inferior in workmanship to the rest of the designs in the book and may be by a later hand than that of the original “John” and may therefore be of later date, but if by him the weave was known to colonial weavers.

And then of course, there are the coverlets in Jacquard weaving, already referred to more than once. To the collector who is not also a weaver the distinction between Jacquard and the more elaborate harness weaving is not always clear. It may be said that coverlets showing more or less naturalistic designs and having a name and date woven into a plain square in one corner are always Jacquard weaving. If woven in one piece they are mechanical weaving, no different in quality except for the quality of the hand-spun yarns, from modern machine weaving—certainly of later date than 1825, and likely to be of a good many years later. Such coverlets belong to the Victorian era and do not fit well with early American styles of interior decoration.

In judging the age of an old coverlet more is to be learned by a study of the warp and tabby threads than will appear from examination of the pattern yarn. Though a good deal of hand-spinning was done for many years after the first introduction of spinning machinery, a coverlet with a hand-spun cotton warp and tabby is probably well over a hundred years old. Certainly one with a machine-spun warp was made later than 1800. Machine-spun thread is distinguished from hand-spun, of course, chiefly by the evenness and regularity of the twist.

Coverlets in “overshot” weaving may belong to any period, but those in double weaving, the double-face or any of the more elaborate harness weaves were probably made between 1725 and 1825.

Coverlets woven by hand if of full width—two yards or more—are always woven in two or more strips and seamed. A coverlet woven full width is not

hand-weaving—whether fly-shuttle or power-loom weaving it is not possible to say.

A number of unscrupulous people have of late set up power looms for the weaving of colonial coverlets, using the ancient patterns, and are selling the product as "hand-woven" so that caution is necessary in buying.

CHAPTER SEVEN

THE LANGUAGE OF WEAVING

CRAFTSMEN love the special words of their craft—old words, worn round at the corners by long service, that stand for solid accomplishment and carry a connotation of skilled workmanship. Such words are like passwords to an inner circle; they are symbols of initiation into ancient and honorable “mysteries.”

Many of the special words of the weaving craft have gone over into general usage; we come across them every day in the common prints—with all the metaphorical force and vividness gone out of them in these times that know not looms or shuttles, but a part nevertheless of the basic fabric, the “warp and weft” of our everyday speech. How could the writers of special articles get on without “tissue of lies,” reference to Penelope and her famous bit of tapestry, or to the “tangled web we weave when first we practise to deceive!” A tangled web is one of the most heart-breaking of human experiences, but how is the non-weaving man in the street to know that? “Weave Truth With Trust” says the ancient motto of the Weavers’ Guild of London, and truly no branch of human activity carries a heavier penalty for running crooked than does weaving.

Many of the old words, of course, are known only within the craft and mean nothing to the generality. The terms in current use among modern American hand-weavers are for the most part of English or Scotch origin, though some are German or Scandinavian and some of obscure ancestry—like the rest of our rich language.

Each part of the loom has its name—sometimes several names in different districts. There are the beams—warp-beam, cloth-beam and breast-beam, also a “knee-beam” or idler (not always present), to carry the finished web away

from the knees of the weaver, and the "slabstock" which is the beam at the back over which the warp passes between the warp-beam and the harnesses. The side uprights of a loom are the "capes" and they support the "top-castle" that carries the rollers, "jacks" or "coupers" by which the harnesses are operated.

In American usage the frames on which the heddles are strung are called



(21) The wing chair is upholstered in "Wheel of Fortune." See draft number 193.

"harnesses." In English usage they are called "leaves" and a harness is a different matter. This is sometimes confusing to those who study English books.

String heddles have an upper and a lower "doup" as well as a "mail" or

eye, and they run on a Maitland cord. Wire heddles—generally in use among modern weavers—have only an eye, and run on rods.

Why American weavers term the levers under the harnesses "lamms" though they are called "marches" in English and Scotch usage and also in Scandinavian terminology, it is hard to say. The word must be old, and is perhaps the origin of the verb "to lam." Lamms would make excellent instruments for the act of lamming, that is certain! And, too, there is the similar word "lambaste"—one might infer that the weavers were a people of vigorous habit.

The treadles under the lamms are tied up with the "snitch-knot" without which no weaver could possibly adjust his loom. Modern weavers sometimes call this knot simply the "loom-knot," for lack perhaps of the ancient term.

The batten or beater has many names. English and Scotch usage has "lay" or "laith." The side-pieces of the batten are the "swords" and the bottom cross-piece is the "race" or "shuttle-race." The "reed," as modern weavers usually term the comb-like piece set in the batten, is also called the "sley" and the process of drawing the warp through the reed is always "sleying." The "sett" of the reed is the number of "dents" or "splits" in a given width. Modern practice is to measure the sett by the number of dents to the inch, but ancient practice was based on the number of dents in a Scotch ell.

No doubt the name "reed" derives from the process of manufacture of the old reeds, many of which are still to be found in ancient garrets. They were made of fine slips of bamboo or reed set between half-round pieces of wood and bound tight with twine. The sett was determined by the "grist" of the twine used, one turn of twine separating each two splits. Metal reeds of to-day are made in the same way, but instead of bamboo have narrow pieces of metal.

The "raddle" or "ravel" is an instrument used in warping the old-fashioned way, and in the same process one may also use a thing called a "heck" which produces a "lease."

The "lease" is the cross between warp-threads, made while warping, and has somehow a mystic and sacred quality. Warpers who warp by the old method seem to feel that if the lease is not absolutely correct "all will be lost." When warping by the sectional method, it is not usual to put in any lease

whatever, and for short warps no inconvenience results though for long warps a "heck" may be used to advantage.

A "pick" or a "shoot" of weft is a single weft thread; a "lash" of weft according to some usage is a shot back and forth—and the pay of weavers was based in old days on the number of lashes to the inch in a given fabric.

In draw-loom weaving a "lash" is a very different thing, being the set of "tacks" about the cord of the "simple" that serves to open a single shed. The simple, or "symbolt," is a very complicated set of cords attached to the "tail" of the loom—but all these old words are little used by modern hand-weavers in America, where draw-loom weaving is almost unknown.

Modern weavers, though, like those of colonial days, have ado with "shuttles," "cops" and "bobbins," and with "swifts" for holding the skeined yarn for spooling.

Reels for making skeins belong rather to the spinner's craft than to that of the weavers and are little used in our day, and the "niddy-noddy" is a curiosity rather than an instrument of everyday use. A pleasant old word, though,—and a quaint old thing to hang on the wall,—and it is agreeable, somehow, to know the ways and uses of both.

PART TWO

CHAPTER ONE

THE PRACTICE OF HAND-WEAVING

SPINNING

BEFORE a housewife of the old day came to the point of choosing a pattern for her new coverlet she had gone through a long series of preliminary processes, beginning perhaps with the planting of flax and the tending of a flock of sheep.

The cultivation of flax is a purely agricultural problem, concerned with soil and climate, and need not be considered here. Nor need we go into the questions of animal husbandry involved in the production of a fleece.

After the crop of flax has reached the proper stage of maturity it is cut, and the long process of preparation of the fibers begins.

The first step is called "retting." The flax to be retted is usually immersed in a pond or stream for a period just long enough to separate the straw from the fiber. The exact time necessary for this treatment depends on temperature and on the quality of the water—whether hard or soft. Soft water is necessary for best results. If retting is allowed to proceed too long, even by a day, the fibers will be injured and perhaps the entire crop may be ruined. Flax is sometimes retted on the ground in a shady place where dew falls heavily at night; but this, of course, is a much slower process than retting by immersion.

Next the flax must be dried and "broken." This was done in the old days on a sort of heavy table equipped with a wooden beater that came down into a slot in the middle of the table. The instrument was designed to break and chop up the straw.

After "breaking," the flax must be hackled or "heckled"—done by drawing bunches of fiber across heavy combs called "huckles." These hackles are

made of blocks of wood set with long iron teeth, and are graduated from coarse to fine. By combing again and again, first through the coarse hackle and then through finer and finer ones, the broken straw is all combed out and the fibers are laid straight and even, ready for the spinning wheel.

Occasionally old garrets to this day give up hanks of hacked flax—gray or cream yellow, smooth and shimmery, an inspiration to any one with nimble fingers. And old spinning wheels are still numerous and easy to come by.



(22) A mountain woman at a colonial flax-wheel.
"Spinning is a delightful and gently soothing occupation."

finger and thumb, bring a wonderful sense of well-being. A spinning wheel in active service deserves a place beside every comfortable hearth.

The process of spinning on a flax wheel is a simple little trick of the fingers coöordinated with a rhythmic action of the foot on the treadle. When learning it is well first to practice treadling till it becomes easy to keep the wheel going at an even rate. The twist and rapidity of the spinning are regulated by a large screw-shaped piece of wood screwed into the front end of the standard supporting the wheel. If this is screwed too tight the thread

Spinning is a delightful and gently soothing occupation. In doing it one realizes why "Cross-patch, cross-patch" of the old nursery rhyme is advised to "sit by the fire and spin." No ill-temper can long survive such treatment.

The hum of the wheel, the flick-flick of the cord that drives the spindle, and the fine, smooth thread drawing out and drawing out between

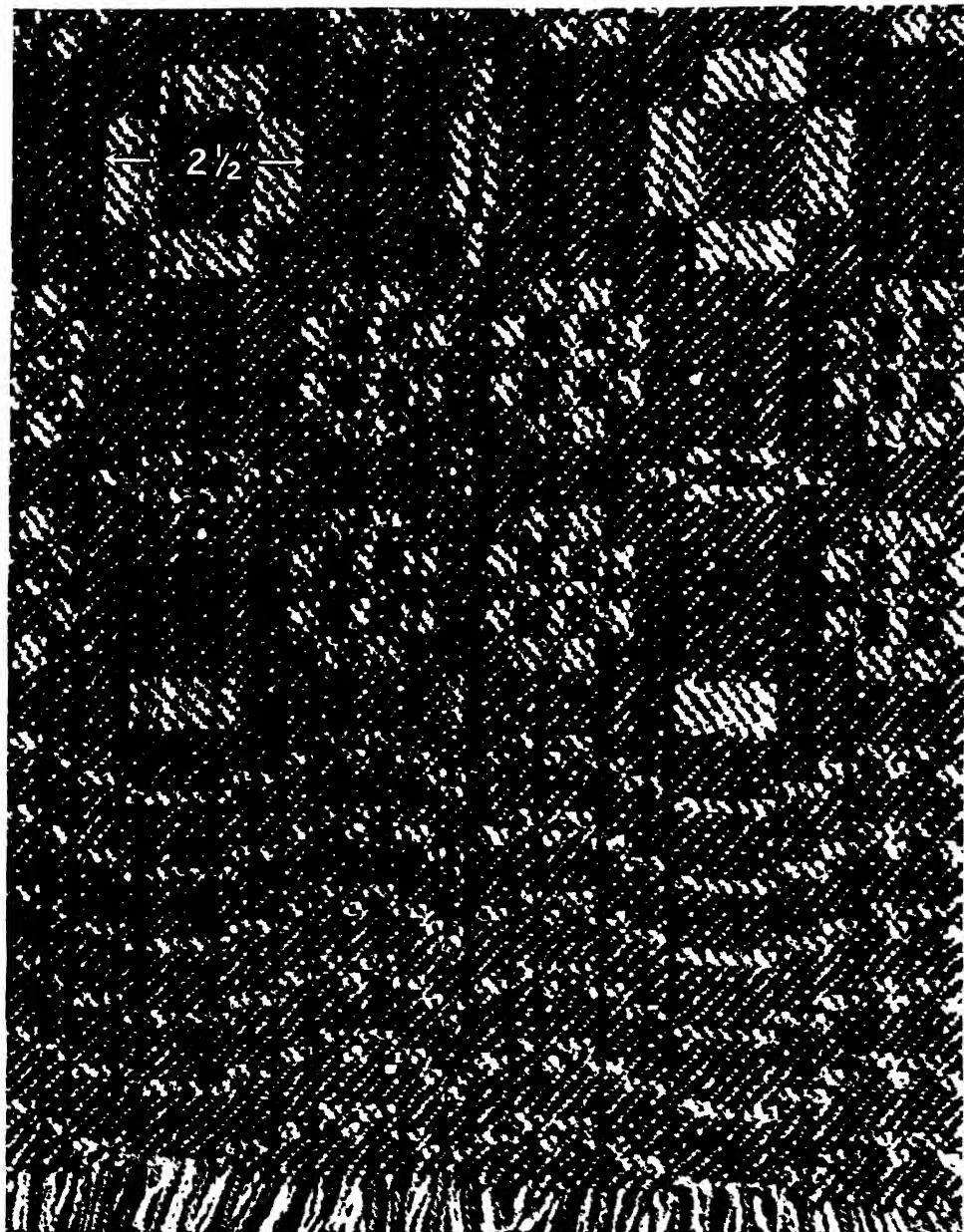
will wind up too rapidly on the spool and will not be sufficiently twisted, while if the tension is not tight enough, the thread will become kinky.

To begin spinning, attach a thread about a yard long to the spool, take it over one of the hooks of the spinning-head and through the eye of the spindle. Sit somewhat sideways at the wheel with the right foot on the treadle; swing the arm of the "distaff"—the arm that carries the flax—into a convenient position to the left; draw out a few strands of flax and twist them around the thread attached to the spool. Now grasp the end of the thread, together with the strands of flax, between the fingers and thumb of the right hand, and draw the thread out till it is at a slight tension. Set the wheel in motion and holding the thread tight, allow it to twist. At the same time draw out the strands of flax between the thumb and fingers of the left hand till several inches of straight fiber separate the two hands. Then, holding fast with the left hand, let go with the right and allow the twist to run up to the left thumb and finger. Slack off the tension on the thread and allow it to roll up on the spool for several inches,—but not so far that the fingers are drawn close to the spindle. Now grasp the thread with the right thumb and finger close to the left-hand fingers, and holding the thread as at first, draw out the strands of flax for another few inches. All this time the wheel must be kept turning.

First attempts at spinning result in large quantities of spoiled flax—however, once acquired the trick is never forgotten. In almost any community it is possible to find "old-country" women who learned to spin as children in Sweden or Norway and who are glad to give a lesson or two in the art.

Flax for spinning can usually be secured through dealers in imported linen threads. Belgian flax is the best, and Irish very good also. Beautiful flax used to come from Russia and may some day come again. American flax is apt to be coarse and harsh and full of straw—not properly hackled. Some day it may improve.

Wool went through a different process of preparation in the old days before being spun into yarns. The fleece as it came from the sheep must first be sorted. As a rule five grades were recognized. The softest and longest and best quality wool the colonial spinner set aside for her most particular occasions—for a shawl for Sunday wear, or perhaps for a scarf, or for a new



(23) Ancient double-face twill weaving, all wool, from a New Jersey blanket.

coverlet. There were uses for the coarser grades also from "linsey-woolsey" and "Jean" to floor-rugs and horse-blankets. Nothing was wasted.

After grading, the wool was sometimes scoured before spinning. In that case oil must be added to it later. Usually the thrifty housewife spun her yarns "in the grease." To be sure, greasy wool is very unclean and has a heavy odor, but a manufacturer must not be too dainty. Carding takes out much of the filth, and one becomes accustomed to the smell. It is an honest smell.

Carding wool is heavy work, though not as hard as hackling flax. Wool cards are flat pieces of wood fitted with handles and shod with leather in which are set many fine hooks of wire. In carding one of these cards should be held firm with the left hand, face up, against the knee—with a wisp of wool upon it. The other "card" grasped in the right hand, must be drawn across it, outward, with a brisk motion, repeated until all the kinks and knots, the burrs and grass-seed and what not are combed out of the wool and all the strands lie straight and smooth. A reverse motion on the cards rolls the wool up into a loose cigar-shaped roll that should be lifted from the hooks, laid on the smooth wooden back of the card and rolled and patted with the back of the other card till it is of the right density to spin easily. The roll should then be carefully laid aside in a tray or box and another pinch of raw wool treated in the same way till a number of rolls have been made.

Wool may be spun on the same wheel used for flax—the spinning-head and the hooks, the eye, etc., should, however, be larger than is usual on the colonial flax-wheel. The process of spinning is similar except that, of course, no distaff is used. Each roll of wool is taken up separately, held lightly over the left hand and drawn out till of the desired "grist" or fineness. Wool spinning goes far more rapidly than linen spinning.

The wheel used in colonial days for the spinning of wool was a great wheel, as big as a cart-wheel, at which the spinner stood, and which she set in motion either with her right hand or with a stick held in the right hand. Such wheels have no system of hooks and spools, and the finished yarn is allowed to wind up on the spindle itself. The procedure is to attach the new roll to the end of the last one, set the wheel in motion and walk away from the wheel, drawing out the yarn and allowing it to twist as one walks. When drawn

out and twisted to the end, the yarn is allowed to wind up on the spindle while the spinner walks back towards the wheel. This is a rapid way of spinning but rather more difficult to learn than the other.

Cotton had to be "willowed" before carding. It was laid on a hammock of cords and beaten with switches to take out the dirt. It was then carded into rolls and spun in much the same way as wool.

After spinning, the yarn must be taken from the spools or spindles and reeled. Ancient reels were often constructed with a "click" which speaks with the voice of a cricket at the end of each 40 turns. Hearing the click, the skein-maker is expected to stop and tie a knot through the skein. Later the yardage of the yarn can be computed as so many "knots."

Yarns were sometimes skeined in a slower way on a "niddy-noddy"—an odd little wooden contrivance made of two long arms with cross-pieces. One finds niddy-noddies now and again in the "antique" shops among other bits of household equipment of a bygone age. (Where have I heard an old tag of rhyme—something about "Niddy-Noddy, Niddy-Noddy, two heads and one body"?) By grasping this instrument in the center and twisting it about in a certain way it is possible to make a skein of standard length. Of course as there is no click one must count the number of turns in order to put in the knots at the right intervals.

Why linen skeins should measure 90 inches—by ancient act of Parliament—while wool and cotton skeins measure 54 inches, it is hard to say. The wool skein, it is claimed, was established in length by one of the English kings, and is the measure of his forearm. However that may be, the ancient convention holds good to this day. The full scale of linen measurements runs as follows:

1 cut	300 yards
2 cuts	1 heer 600 yards
24 cuts	12 heers 1 hesp 7200 yards
48 cuts	24 heers 2 hesps 1 spindle 14,400 yards

The fineness or "grist" of yarn is reckoned from the number of cuts to the pound. Thus a thread that runs 25 cuts to the pound is known as a "25s"

thread, and a "40s/2" thread is a two-ply thread made of two 40s threads twisted together. The yardage to the pound of any thread is easy to determine. A "40s/2" thread will have the same yardage as a "20s single"—6000 yards to the pound.

Wool and cotton yarns, as noted above are reeled into skeins measuring 54 inches, and the system of counting is also different from the above.

1 knot	60 yards
2 knots	1 shift 120 yards
14 knots	7 shifts 1 hank 840 yards
252 knots	126 shifts 18 hanks 1 spindle 15,120 yards

The grist is reckoned on the number of hanks to the pound.

Now, as there are 840 yards in a hank, the highly inconvenient and unmetrical number of 840 is the base for calculating the yardage per pound of cotton and woolen yarns. This system holds good to the present day. A "20s/2" cotton, for instance, has the same yardage as a 10s single, or 8400 yards to the pound.

This is all rather confusing, but far more complicated was the ancient system of reckoning the quantity of warp required for a given piece of work. This was figured, for some occult reason, on the Scotch ell—a measurement of 37 inches—and on the number of "splits" or dents in the reed—the number, that is, of splits in 37 inches. The whole thing was calculated "by ells, splits, porters, and spindles," as an ancient book explains—a "porter" being taken as 20 splits or 40 warp-ends.

For some unknown reason the American system seems, from the first, to have differed slightly from English usage—though it was no simpler or more reasonable. Here is what an old weaver—Harmon Goodwin, the last, probably, of the old weavers of New England—said the other day in answer to a question: "I figure my warp this way—always have: A beer is 38 threads. Seven knots in a skein, 40 threads in a knot. A knot will warp two beers a yard long—that will be 76 threads." It sounds cabalistic. One returns with relief to yards, and number of warp-ends per inch—the modern method.

CHAPTER TWO

DYEING

WHEN Colonial Dame Dorcas or Mistress Marjory wished to give her fabrics the charm of color, she must turn dyer after her yarn was spun.

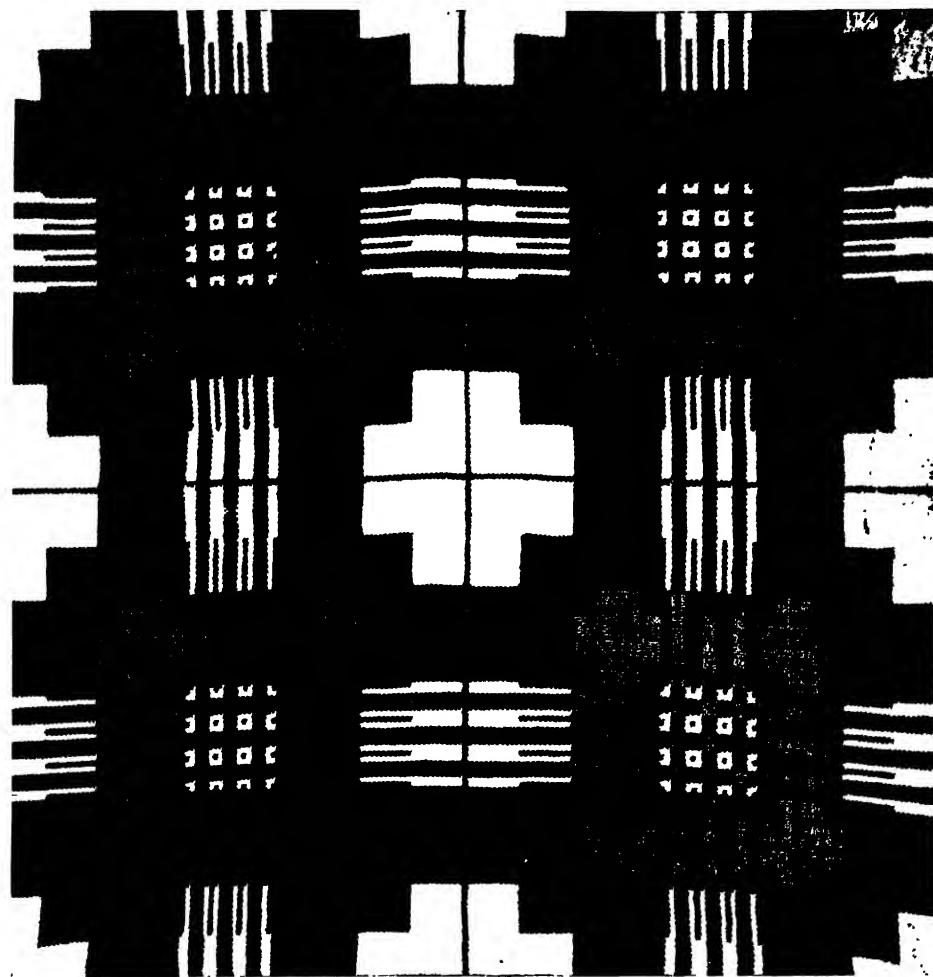
She usually dyed blue—not only because blue is a handsome and serviceable color, but because the most available dyestuff—indigo—dyes blue. Madder, too, she used, for the lovely brownish rose shades we so greatly admire in the ancient coverlets. These two dyestuffs when properly applied produce colors eternally “fast.”

Occasionally, wearying of blue and rose, she adventured further—making a good brown with walnut shells, yellow with peach leaves and mullein—other colors from other weeds and “yarbs” out of the field and garden. Sometimes she achieved good results and sometimes fell into failure, for it is not by any means true that all vegetable dyes are permanent; some are far more fugitive than even the unreliable salt-dyes from the corner drug-store.

The setting of an indigo vat, as done in colonial days, was not a simple matter of buying a packet of something and putting a kettle on to boil. It was an anxious, urgent, temperamental business, only to be undertaken at the proper times and seasons of the year. Once functioning, however, an indigo vat would dye blue day after day for weeks and months if properly looked after.

For those who like to experiment with dyestuffs, there is much matter of interest in the old book already referred to, published in 1817 at Utica, New York. The authors, J. and R. Bronson, say in their preface: “We would not wish to be understood that families can dye all their cloth to advantage themselves, especially if the quantity is large, for in such cases it would require larger kettles than what are generally used for domestic purposes. In dyeing

of scarlet and other fancy colors on Woolen, and the various colors on cotton, we have given such particular and plain directions, that there will be no

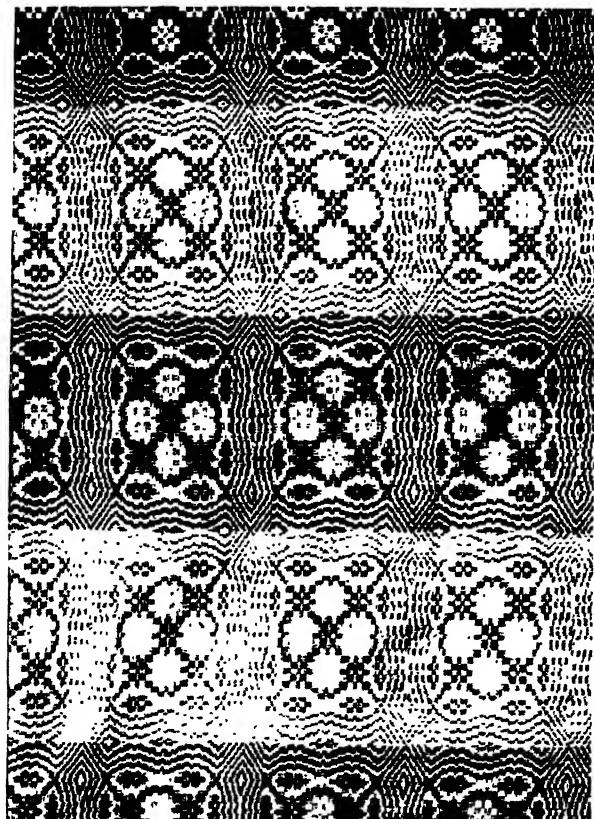


(24) The Three Flowers taken from an ancient coverlet in white, red and blue, double woven. Draft number 209.

difficulty for any family to obtain them, should they follow the rules with exactness, which will be found indispensably necessary."

Of the preparation of indigo for dyeing the Bronsons write: "The common method of grinding indigo by hand is to suspend an iron pot, of a suitable size, with a rope, and useing a cannon ball, which is rolled round by taking hold of the legs with hands."

(A cannon-ball not usually being provided with legs, it is probable that the author intended to refer to the legs of the suspended "pot of a suitable size, with a rope.") "The indigo is first soaked in hot water, then broken up fine and put in the pot a little at a time, with a sufficient quantity of water to prevent the indigo from sticking to the sides and bottom. The ball is then to be rolled round for about an hour; then add some water to make it quite thin, and roll the ball a few times round to mix it; then hold the pot still two or three minutes and pour off the clear part carefully, into a kettle. You will then add a little more indigo and



(25) Lace and Compass, from North Carolina, woven in brown and gold. Draft number 76.

water and proceed as before, until it is all ground. In this way you can grind it as fine soil."

The directions for dyeing with indigo as given by the Bronsons are simpler than the process used to the present day among the mountain weavers of the South—which involves raking at two-hour intervals, day and night, for many days. Whether it is as effective or not only experiment could prove.

"Indigo blue on wool or linen (as practised in many families):

"(1) To color six pounds of wool, or five pounds of linen yarn, put two pailsful of chamberlye into a clean tub, then dissolve 4 ounces of potash, (or instead of it 6 ounces of pearlash) in a quart of hot water; put this in the tub, mix it and let it stand for six days. Then pour off the clear part into a kettle, until you come to the settling. The settling will now be thrown away, and the tub rinsed; you will then pour the clear liquor back into the tub again.

"(2) Take four ounces of indigo, and two ounces of madder, put them in a thin bag, and put it in the tub, rubbing it well 4 or 5 times in the course of the day. You will now put the yarn or wool under the dye for 6 hours, then take it out, wring and air it. If it is not dark enough, put it in again and proceed as before, until it is to your mind.

"N.B. When the dye grows weak, add more dye stuff and let the proportions be the same as at first directed, although the quantity used will not be as much. Spanish Flote or Best Bengal Indigo is to be preferred to this dye."

The use of madder with indigo gives to the dark blue of the ancient coverlets the rich bloom that is so different from the ugly purplish "navy" blue sometimes dyed on cheap serges of the present day.

For dyeing with madder the Bronsons give the following directions:

"Madder Red on Woolen. To dye one pound of yarn or flannel it will require the following articles:

3 ounces of allum
1 ounce cream of tartar
8 ounces of madder
$\frac{1}{2}$ ounce of stone lime.

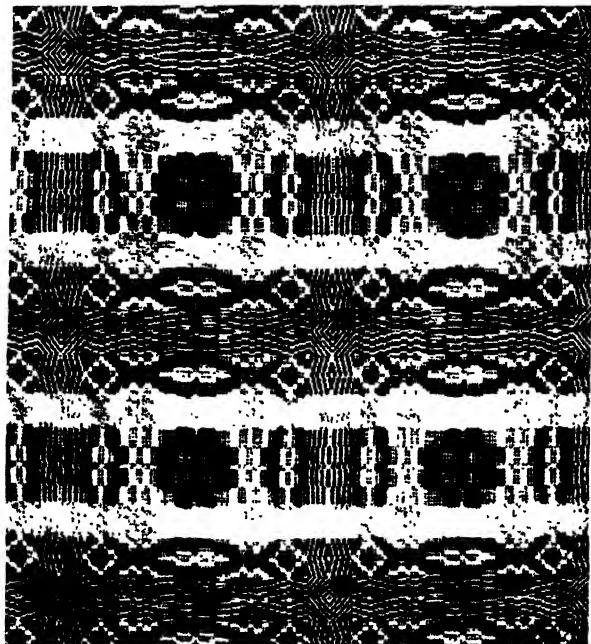
Use the same proportions to dye any number of pounds.

"1. Prepare a brass or copper kettle with about five gallons of water; bring the liquor to a scalding heat, then add 3 ounces of allum that is pounded, and one ounce of cream of tartar; then bring the liquor to a boil and put in the woolen and boil it for two hours. It is then taken out and aired and rinsed, and the liquor emptied away.

"2. Now prepare the kettle with as much water as before, and add to it 8 ounces of good madder, which should be broken up fine, and well mixed in the water before you put in the woolen. When you have warmed the dye

as hot as you can bear the hand in it, then enter the woolen and let it remain in the dye for one hour, during which time the dye must not boil, but only remain at a scalding heat; observing to stir about the woolen constantly while in the dye.

"3. When the woolen has been in 1 hour, then bring the dye to a boil for 5 minutes. The woolen is then to be taken out and aired and rinsed.



(26) Star in the Wilderness from North Carolina,
woven rose-fashion, in blue, rose and tan.

Draft number 76.

of aqua fortis composition at the time of putting in the madder."

The process described in paragraph 1—the boiling with alum—was called "mordanting" the yarn, and was apparently always used as a preliminary to vegetable dyeing on wool. Sometimes in dyeing with madder bran was used in the dye-bath (put loosely into a sack of thin material and rubbed out in the dye-bath between the hands), for what special purpose does not appear to be clear.

For dyeing with roots, leaves, bark and such substances enormous quanti-

"4. Add to the dye half a pint of clear lime water, which is made by slackening about half an ounce of lime to powder; then add water to it and when settled pour the clear part into the dye and mix it well. Now put in your woolen, and stir it for about ten minutes, the dye being only at a scalding heat. It is then to be taken out and rinsed immediately.

"N.B. Should you wish the red very bright, add about a quarter of an ounce or nearly one-half a tablespoon

ties are required to produce strong colors. The vegetable matters must be boiled a long time in order to extract the coloring agent, and then the liquor must be strained off and reheated before the material can be dyed.

All dyes "take" better on wool than on any other material, and this may be one of the reasons why in the old coverlets it is always the wool that makes the colored part of the effect, the ground being bleached or "natural" cotton or linen.

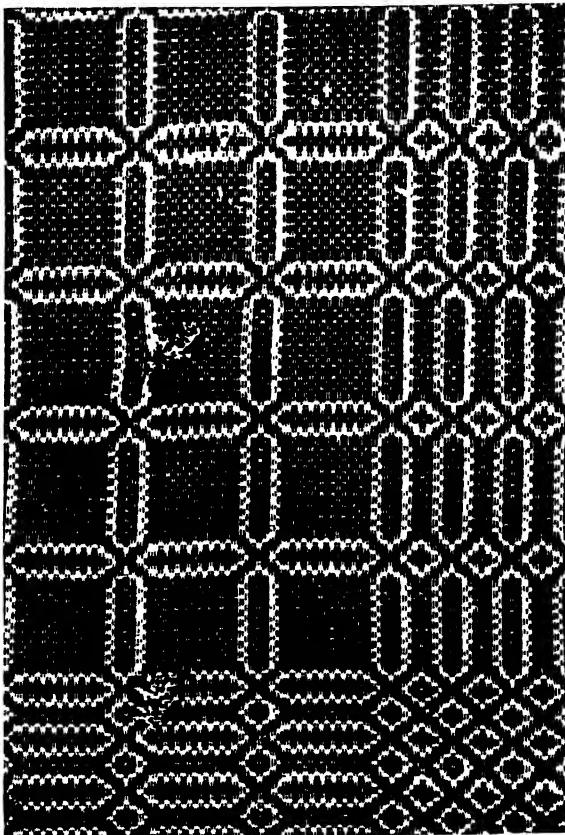
Before dyeing, woolen yarn must be scoured to free it from the grease in which it was spun. The scouring process as described in the Bronson book is not dainty, not even exactly polite. One is advised to carry it out at the edge of a stream.

Flannel, we are told, is better woven "in the grease" if it is to be dyed a solid color. The cloth is scoured after weaving and dyed in the piece.

Linen may be bleached in the yarn or in the piece after weaving. The process of dampening and bleaching in the sun is slow but safe.

Bleaching with chloride of lime is faster but also is dangerous, as it may result in greatly weakening the threads. Beware of a linen that gives off the chloride of lime odor.

Modern dyeing if done by the so-called vat-dyeing process produces colors



(27) A simple pattern similar to Butternut, but larger. From an ancient coverlet in blue and rose. Draft number 8.

as fast as indigo and madder, and in an infinite profusion of shades, so we are no longer limited to blue and rose for our color effects—however, few things prove more satisfactory.

Vat-dyeing at home is usually impossible for modern weavers, as it is a fairly complicated chemical process and the dyestuffs are not currently on the market. Salt dyes are not fast and should never be used for materials to be used in hand-weaving. Many people, however, enjoy dyeing their own yarns and it is pleasant to record that in Pellew's "Dyes and Dyeing" they will find a safe guide. Experiments with local roots and herbs are interesting, too. The roots of the Oregon grape, for instance, will—of personal knowledge—dye a handsome ocherish yellow that did not fade when left hanging on a fence for a whole summer under the direct glare of a Montana sun. But it takes several bushels of roots to dye a pound or two of yarn. Mullein dyes yellow—a more permanent yellow than peach leaves. Gentian dyes blue. It is a fascinating field for research.

CHAPTER THREE

CHOICE OF MATERIALS

A MODERN Dame Dorcas need not plant flax nor shear sheep, need not card or hackle or spin or dye unless she chooses. Many different threads and yarns are available in a wide variety of colors. There remains simply the question of selection.

What materials to use for a given piece of work depends chiefly on taste, and therefore no hard and fast rules can be formulated. Each weaver must experiment and judge for himself, wherefore it is well in the beginning to lay in a stock of small quantities of as many different kinds and colors of yarn as possible.

Choice of warp is the first consideration. The following are the warps most easily to be obtained in convenient form for hand-weaving, together with suggestions for "sett" and use:

Cotton Warps

(1) Ordinary four-ply carpet warp,—is supplied on half-pound paper spools or cops, in "natural" and in a number of colors. Colors are not very fast. This warp is used for rug-weaving and occasionally for other purposes. For rugs in plain tabby-weave the warp may be set at 12 threads to the inch, but for pattern rugs, it should be set at fifteen threads to the inch. Heavy eight-ply carpet warp is sometimes used for rugs. This should usually be set at eight threads to the inch.

(2) Ordinary cotton warps come in many different sizes—"20/2" "16/2," etc. The one oftenest used is "20/2," a fine, rather soft warp, sometimes troublesome on account of broken threads but attractive when woven. This should be set at thirty or thirty-two threads to the inch, if to be used for



(28) "What materials to use for a given piece of work depends on taste."
A piece of coverlet weaving in a chariot-wheel pattern used for cover of settle.

ordinary overshot weaving. It may be had wound on small tubes, in convenient form for sectional warping. It is difficult to handle on the warping bars.

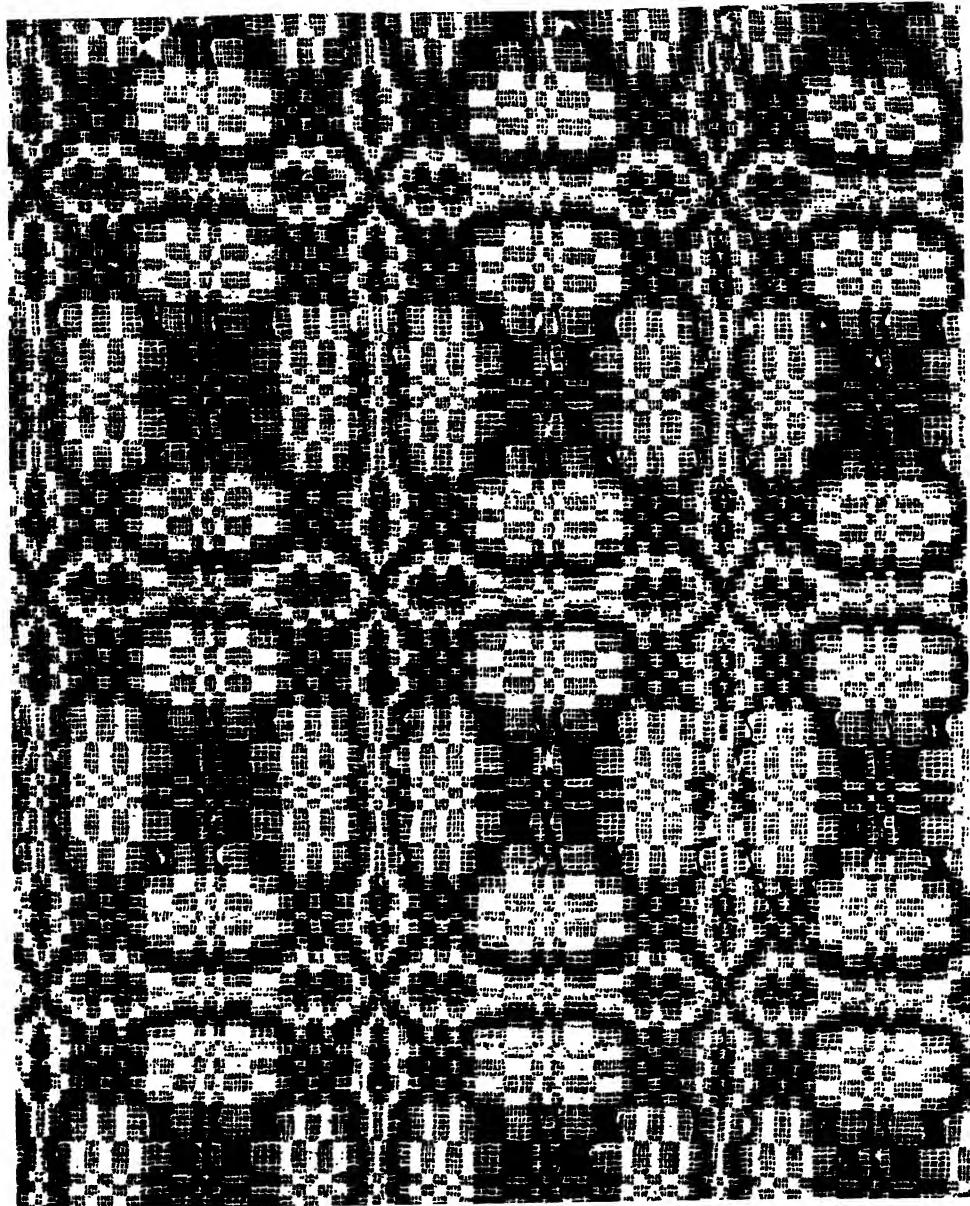
(3) "Egyptian" cotton warps may also be had in a great variety of sizes. The grist chiefly used by hand-weavers is "24/3," a thread usually warped at thirty ends to the inch. It is a very strong and beautiful warp, of a deep cream color that is much the same tone as the foundation of the finest ancient weaving. This warp is supplied by dealers in convenient form for sectional warping. It is a hard-twisted warp and inclined to be kinky, so that it is troublesome on the warping bars. It is, however, easily warped by the sectional method and is the best cotton warp to be had for most purposes. On account of its strength it is a good warp for the use of beginners.

(4) Mercerized cottons are often used for warp. Fine number twenty perle cotton may be set at thirty-two or thirty-four threads to the inch; number ten should be set at twenty-four to the inch; number five at fifteen to the inch and number three at eight to the inch. These warps may be had on small tubes in convenient form for sectional warping, and may also be had in a wide variety of colors. These threads are strong and do not kink, and for warping over the bars are the most satisfactory cotton warps to be had. For strictly colonial effects, however, they are not as appropriate as Egyptian cotton on account of their shiny appearance. The mercerizing process is modern.

Linen Warps

(5) Linen warps are to be had in great variety. A "40/3" warp is much used, set at 30 threads to the inch, and also number fourteen singles warp with the same setting. Finer warps are set at thirty-six, forty and forty-six threads to the inch. Coarser linens are also used as warp for special purposes.

There is a very great difference in strength between warp-linens and weft-linens. A warp-linen may be used for weft but a weft-linen should never be used for warp. There is, too, a very great difference in effect between a twisted "round" linen and a flat "singles" linen. The round linen if used both for warp and for weft produces a wiry fabric. Singles linen can be woven much closer and makes a softer fabric.



(29) The Rebecca Garrison coverlet from North Carolina. Draft number 69.

Wool Warps

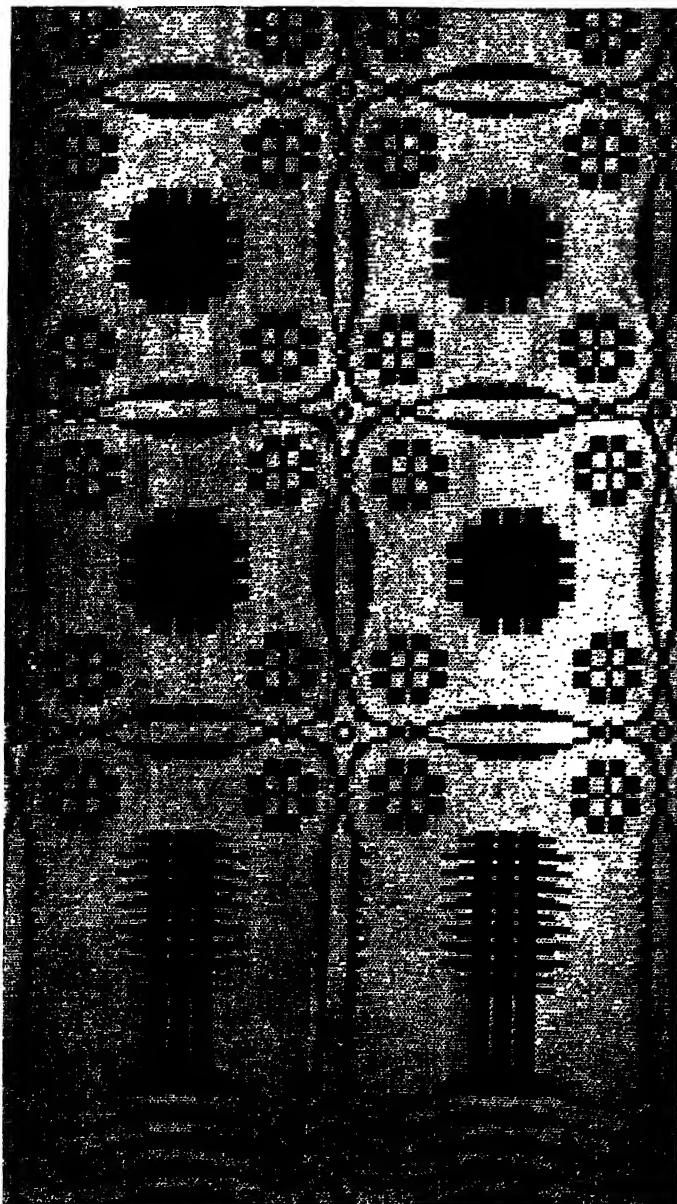
(6) Woolen and worsted yarns are used for warp in the making of scarves, fabrics for clothing and sometimes for upholstery and other purposes. A rough wool such as "homespun" yarn makes a very troublesome warp indeed, and in general all the loosely twisted yarns tend to fray and pull apart. For loosely woven scarves a yarn known as "fifteens-two" is ordinarily used and should, for a light-weight scarf, be set at fifteen threads to the inch. The best-grade yarn of this grist goes by the trade name of "Iceland" yarn. The most satisfactory wool warp, however, and the easiest to manage, is a closely twisted fifteens-two that goes by the trade name of "Fabri." This material may be set at twenty-four threads to the inch for light-weight dress-material and at thirty to the inch for heavier cloth. Shetland yarn is sometimes used for warp—set at fifteen threads to the inch—and Germantown yarn is often used for warp in baby-blankets, set at ten threads to the inch.

Wool warps are not supplied spooled for warping, because the material loses its elasticity if allowed to remain too long at a stretch. It must be spooled immediately before warping and should be woven off rapidly. Wool that has been left for months on the cops or on the warp-beams is ruined.

(7) Silk warps are beautiful and easy to handle. That chiefly used by hand-weavers is a fine "spun" silk set at thirty threads to the inch.

This list does not by any means exhaust the warp-possibilities. It simply names the commonest and most satisfactory of the warp materials in use and easily obtainable.

Almost any kind of yarn or thread may be used for weft material. In ordinary overshot work the warp-thread is as a rule also used for tabby—though this is not always the case. The material used for pattern weft should be coarser than that used for tabby. Of cottons suitable for pattern weft the most attractive are the various strand cottons to be had,—mercerized, unmercerized, etc. Much modern Italian weaving, greatly admired in this country, is done in unmercerized strand cotton over a fine cotton warp and tabby. The coarser perle cottons are sometimes used for pattern weft in overshot weaving, but are not as handsome for the purpose as the strand cottons; the effect is not so soft.



(30) Single Snow-Ball pattern with Pine-Tree border, in summer and winter weave (modern).

Linen weft—both "flat" and round linen, linen floss and colored linens—may be woven over Egyptian cotton or other cotton warps with excellent results, and of course also over linen warps. Linen materials may be had in natural color, bleached, and in many delightful shades.

All the many woolen yarns may be used for weft. The "classic" method of weaving the overshot weave is to use a colored wool for the pattern over a foundation in white or natural linen or cotton. For a true colonial coverlet nothing is so good as home-spun yarn over Egyptian cotton warp and tabby. Shetland yarn also weaves well over a fine cotton warp, and for a very thick and fluffy effect

Germantown yarn is excellent. Fabri yarn used for overshot makes a light-weight fabric. For the "linsey-woolsey" dress fabrics lately so much the fashion a Fabri weft over a warp in Egyptian cotton, or fine linen, or in number twenty perle cotton, is excellent. For a heavier "linsey-woolsey" homespun yarn may be used.

Artificial silk or "rayon" materials are enjoying a great vogue at the moment. For strictly colonial effects, they are unsuitable of course. They are extremely shiny; also they have no elasticity. Artificial silks should not be woven over cotton, as the effect is "cheap" and tawdry as a rule. If used they should be used in combination with soft woolen yarns or with real silks. Occasionally they can be combined successfully with linen as in some of the modernistic textiles from France.

Real silks are delightful for hand-weaving. Strand silks and heavy tussah silks are perhaps the kind most often used as weft by hand-weavers.

CHAPTER FOUR

LOOMS

WEAVING involves the use of a loom.

A "loom"—according to Webster—is "a frame or machine for interweaving yarn or threads into a fabric." The term "loom" is thus very general and covers anything on which cloth can be made, from the two logs of wood a Navajo weaver suspends in a tree to the complicated power-driven Jacquard and "leno" machines of a modern textile mill.

Primitive looms consist often of nothing but two heavy rollers between which the "warp"—the system of threads running lengthwise of a fabric—may be stretched and held in position while being interlaced with the "weft," or cross-wise threads. As a rule, however, "loom" means something more than this; it indicates not only a frame, more or less elaborate, over which the warp is stretched, but also an apparatus of some sort by means of which the strands may be drawn apart for the passage of the weft-carrying shuttle. This "shedding" mechanism may be simply a flat stick carried in and out between the warp threads that when turned edgewise in the warp produces an opening or "shed," or it may be the amazingly intricate motion of the Jacquard loom. Between these extremes there are many gradations; and with each change in shedding motion we have a different "loom."

The first loom set up in the colonies was no doubt a rude, home-built affair, hacked out of the timber of the surrounding wilderness. It was a great heavy structure with a frame as stout and strong as the framing of a ship, and as wide and as high as the living quarters of many a city-dweller of the present day. At one end, supported on brackets, was a great round log to serve as a beam for the warp, and at the other end a similar log on which the finished fabric could be rolled up as made. From the top of the loom over



"An old loom is experienced, responsive."

(31) A modern weaver at an ancient loom.

rollers hung the "healds" or "harnesses" strung with "heddles," and there was a heavy swinging frame—the "lay" or "laith"—to hold the "sley," which we of to-day usually call the "reed." Across the front was a stout seat or bench. Long treadles, by which the harnesses were operated, stretched under the loom from the back—where they were hinged to the lower member of the frame—to within easy reach of the weaver's feet as he or she sat on the bench.

Many ancient looms of this sort are still in existence, stored away in lofts and hay-mows; they can be bought for little or nothing and reconditioned at small expense. What a pleasure it is to see one of them working again—a new warp stretched over its venerable and staunch old beams, and a handsome new fabric growing, thread by thread, in front of the swinging batten! How easily and pleasantly one weaves upon it! It is old and experienced in the work, comfortable to the feet and the hands, responsive.

These ancient looms carry as a rule four harnesses only—which limits them to certain uncomplicated fabrics such as any one can make. Similar looms have been used for many centuries by the household weavers of many lands. They are not in any way peculiar to America.

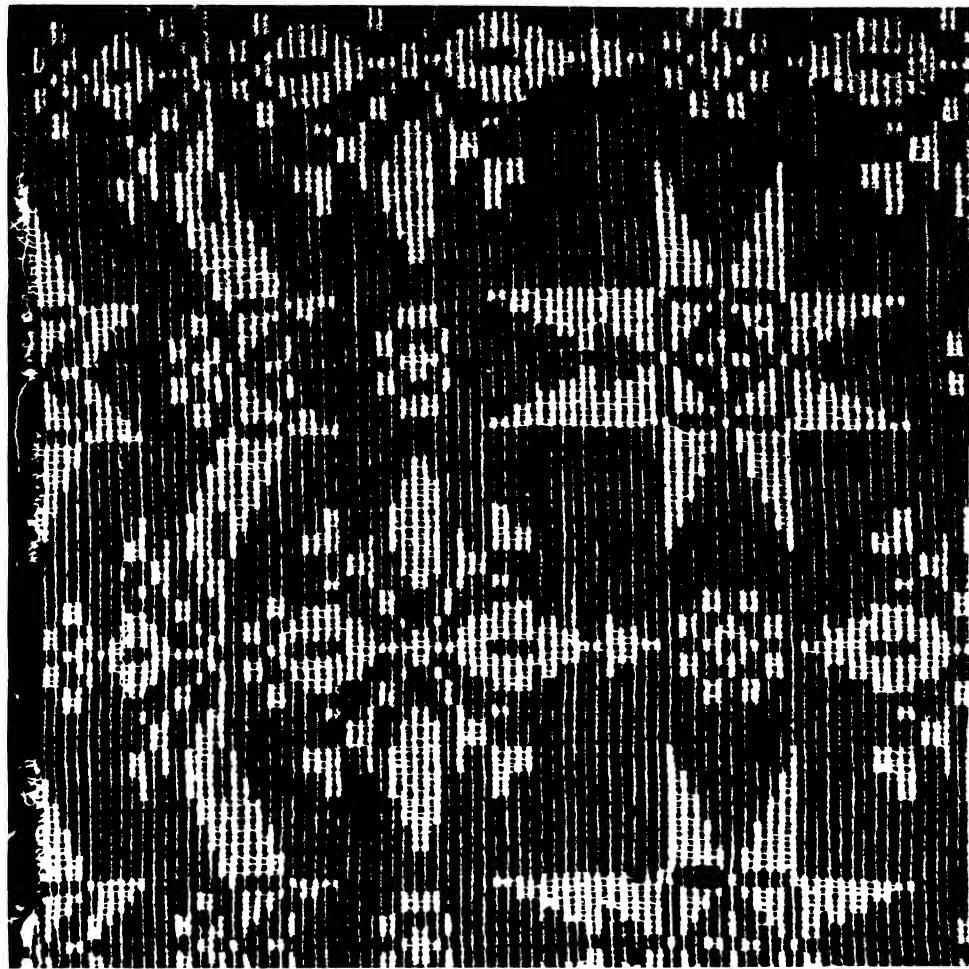
The thing that strikes hand-weavers most on visiting a large modern textile factory is not the difference between the old hand looms and the great power-driven looms, but the amazing similarity. The harnesses rise and fall in the same orderly dance, the shuttle flies back and forth through the shed, the batten pounds up the cloth in just the same way that his own simple weaving is done.

There has not been anything new in principle in weaving for a very long time. Even the Jacquard loom is no more than a mechanical method of operating a far older thing, the draw-loom. Authorities differ as to the date of the invention of the draw-loom, and do not know the name of the genius who made the invention. All we know is that the draw-loom came out of China and was introduced into Europe probably as early as 600 A.D. It does not appear to have been known in England, however, till many centuries later.

I cannot find any record of early draw-loom weaving in America. Conditions of life in the colonies developed no demand, probably, for elaborate damasks and brocades. Those who wished such things imported them from

Europe. It was not till the Jacquard machine made draw-loom weaving easy and swift that this sort of work was done in the New World.

Not to go too deep into technicalities, the difference between a draw-loom



(32) Simple Jacquard or draw-loom weaving.

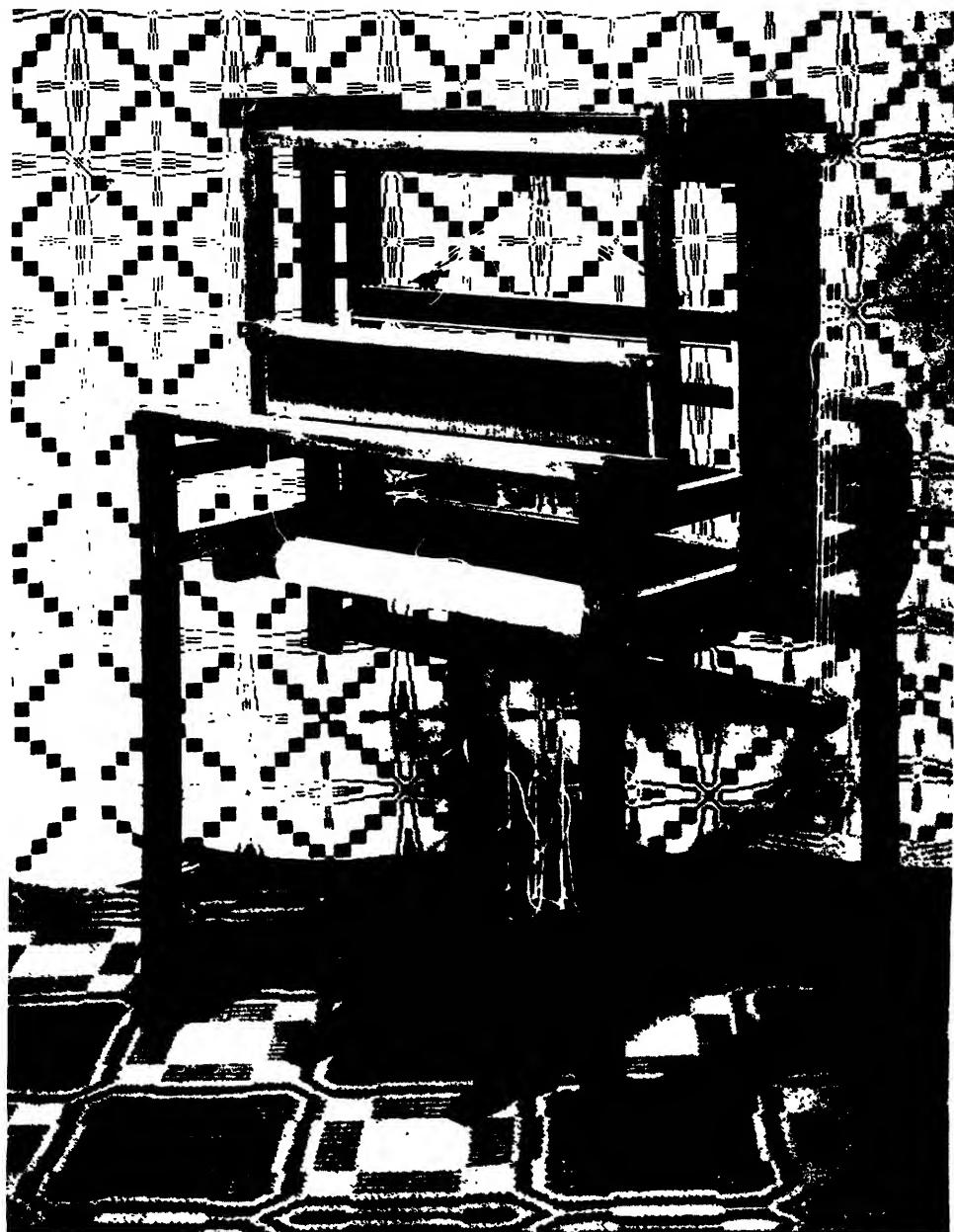
and a harness-loom—or shaft-loom—is briefly this: In a harness-loom the heddles, through the eyes of which the warp-threads are passed, hang on frames. According to the number of these frames is the intricacy of the pattern effect

possible. The four-harness loom of the home-weaver permits a few simple weaves only, and patterns of no more than four "blocks" or changes. Looms of eight, twelve and more harnesses permit more elaborate patterns and more complicated weaves. Looms with as many as forty harnesses have been operated, though twelve to sixteen may be taken as the usual limit. The tie-up diagrams in the old German weaving book several times referred to are some of them written for forty harnesses. A loom as elaborate as this, however, could not be operated by treadles in the usual way and requires the addition of a simple or other mechanism for raising and lowering the harnesses.

In a draw-loom each heddle, with its little weight—the "lingo"—to hold it in position, hangs by itself at the end of a cord. Each one of these cords, operating one heddle and controlling the single warp-thread drawn through its "mail" or eye, may be raised independently, so that the greatest liberty in the matter of design is offered. In most patterns, however, the design "repeats" and the cords controlling the heddles are joined together into groups that may be drawn up together. The system of cords on which the pattern is tied up is called the "simple," and in operating ancient looms of the draw-loom type it was the business of a "draw-boy" to draw down the cords of the simple while the weaver threw the shuttle and operated by treadles a system of shafts that controlled the ground of his fabric.

The work of the draw-boy was arduous. Even though the little lingoies weighed but a few ounces apiece, in drawing up some of the sheds of a wide and fine fabric a thousand or even two thousand lingoies might have to be raised at the same time. Add to this the friction of the cords as they passed over several rollers and pulleys and it becomes plain that the draw-boy needed to have plenty of weight and muscle. Often he used a sort of lever for helping to draw down and hold the cords, and various modifications were devised with the idea of making his work lighter. And then came along the Jacquard machine to take away his job altogether. It is true, however, that the ancient weavers could produce on their old draw-looms anything our great modern power-looms can produce.

A type of draw-loom with a simple of only a few cords is in household use in many European communities but seems never to have been used in America. Modern American weavers as a rule use four-harness or eight-



(33) Small modern eight-harness loom operated by jacks.

harness "counterbalanced" looms similar in construction to the ancient looms but of lighter, smaller and more convenient framing. A better type of loom is the eight-harness or twelve-harness loom operated by "jacks" or "coupers," which may also be had in modern form.

There are many hand-looms on the market now that hand-weaving has become once more of widespread interest, and an inexperienced weaver is sometimes at a loss to select the one best adapted to his particular uses. The following points are the ones to be considered in making a choice:

(1) A loom for pattern weaving must be equipped with at least four harnesses and four treadles. Six treadles on a four-harness loom are to be preferred, and an eight-harness loom should have ten or twelve treadles.

(Two-harness looms, the so-called "non-harness" looms, automatic looms and ordinary fly-shuttle looms are not suitable for pattern weaving of the American colonial types.)

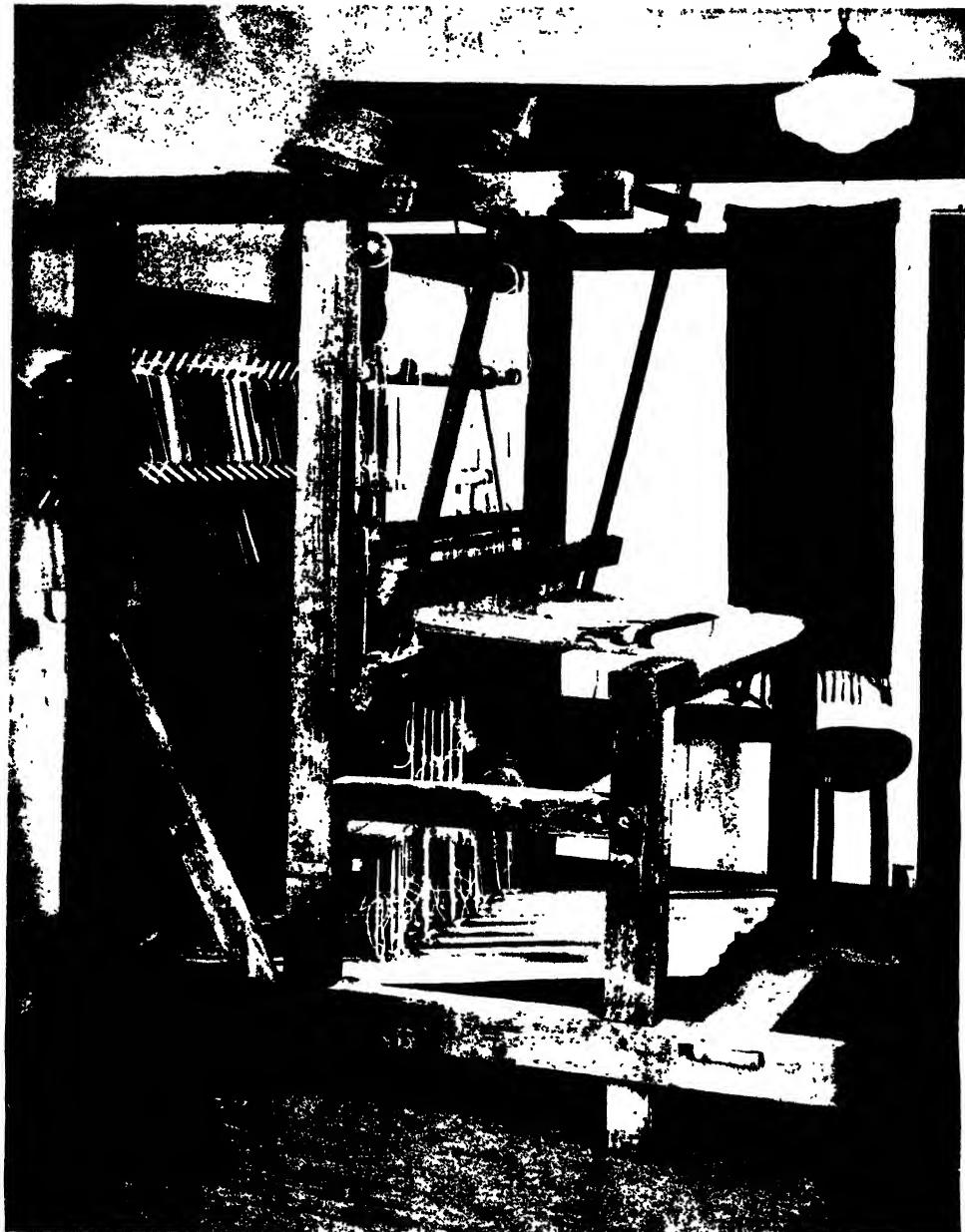
(2) The most practical width for a loom is the greatest width to which a shuttle may be conveniently thrown by hand. For some people this is about forty-two inches while others with longer arms can attain to fifty inches. It is possible to weave narrow things on a wide loom but not possible to weave wide fabrics on a narrow loom.

Of course the question of house-room enters into the problem and many city-dwellers could not weave at all unless they used a narrow loom. Small looms have therefore a definite value, but they limit the weaver to small weaving.

(3) The frame of the loom should be constructed of hard wood, even if the loom considered is a very small one. This point is important, as a loom of soft wood racks to pieces under the constant pull of the warp and battering of the batten. Ratchets must be strong and easy to release.

(4) For convenience in threading, wire heddles should be preferred to string heddles, even though the latter are more picturesque. Old looms when reconditioned are at present usually provided with modern standard "harnesses," or heddle frames, and with modern wire heddles. The reeds, too, should be of metal, even though the ancient reeds, or "sleys," made of bits of bamboo are more interesting to look at.

(5) For convenience, and economy of time in warping, a modern "sec-



(34) An ancient loom, reconditioned for modern weaving.

tional" warp-loom should be selected. This is a hard saying to many of the older generation of weavers who hold with warping after the ancient fashion—on a warping board or drum. But to spend several days, with the help of at least two other persons, over a piece of business that one may accomplish alone in two or three hours—and with no difference whatever in the later operation of the loom or in the quality of the resulting fabric—seems unreasonable to most modern weavers. Ancient looms when reconditioned are often equipped with this modern improvement.

(6) A loom in which the harnesses are hung over rollers operates in a more positive manner than one equipped with pulleys, or "horses." For elaborate weaving a loom equipped with "jacks," or "coupers," is the best type.

(7) The batten may swing from the top of the loom or from the bottom. As a rule the batten swung from below is preferred. The batten should be heavy, and should be provided with a shuttle-race.

Much the same considerations govern the choice of a small table loom:—frame of hard wood, metal heddles, good ratchets, all are as important as on a large loom.

Many modern weavers choose to hunt out and recondition an ancient loom rather than to buy a loom of modern manufacture. Old looms are by no means standard; each seems to have been designed and built to suit individual taste—as one would build a house to live in. Some of course are far handsomer than others. Few that have survived to our day are complete, because during the long years great-great-grandmother's loom lay disused in the garret or haymow of the old homestead, the stout beams of seasoned wood were often the nearest thing to hand with which to shore up a sagging porch or to mend a gate. There is joy in discovering what is left, in fitting the old pieces of wood into their places—how well they fit after all the years!—in contriving replacements for parts lost or broken. And what pleasure at last when all is complete again, to take one's place on the bench and make a new cloth flow over the polished old beams! A thing anybody can do.

CHAPTER FIVE

SETTING UP THE LOOM—THE TIE-UP

LOOMS differ greatly in construction and in size. Small looms are usually shipped by the dealer completely assembled, but large looms have to be shipped either partly knocked down or altogether taken apart, and a beginner at weaving is sometimes faced with the problem of putting together an entirely unfamiliar piece of apparatus. No specific directions for assembling looms can be given here as directions for one make of loom do not apply to others. The illustrations, however, that show several types of hand-loom will be of assistance, and manufacturers often supply pamphlets of directions for assembling their looms.

The "tie-up," however, is a part of the art of weaving and the manufacturer as a rule gives no assistance. In fact even the looms shipped completely assembled are rarely correctly adjusted for weaving, and if a tie-up has been made it is usually best for the weaver to begin work by taking this out and fitting the loom with an entirely new set of cords.

Nothing about weaving is more important than the correct hanging of the harnesses and tie-up to the treadles, for it is impossible to weave either rapidly, easily, or well on a loom that is out of adjustment. A loom that is heavy to operate or that does not make a satisfactory shed either is faulty in construction, or is not adapted to the sort of weaving being attempted, or else is out of adjustment. No weaver should be satisfied to struggle along with a loom that does not open a good shed. It is a waste of time to do so and there will be neither pleasure nor a satisfactory product as a reward of effort.

A loom regularly in operation requires adjustment at the beginning of each important piece of work, and sometimes oftener. A new loom needs constant adjustments for some time after the first tie-up is made, because of stretching of

cords. This is something that should never be neglected. The adjustments are most conveniently made as a rule after the warp is on the loom, the pattern threaded and sleyed, and the warp-ends attached to the cloth beam; however, the subject is more logically considered here, while we are upon the matter of looms.

To make the first tie-up on a new loom requires many yards of suitable cord. The exact quantity and kind of cord depends on the size and make of the loom. For a large loom fifty or sixty yards should suffice. Woven sash-cord of the smallest size is often used for the purpose and can be made to serve, but it stretches badly and will wear out in a year or so. A firm linen cord is far better—stretches hardly at all and lasts much longer. Suitable linen cord is not always easy to obtain but is carried by some dealers in weaving supplies.

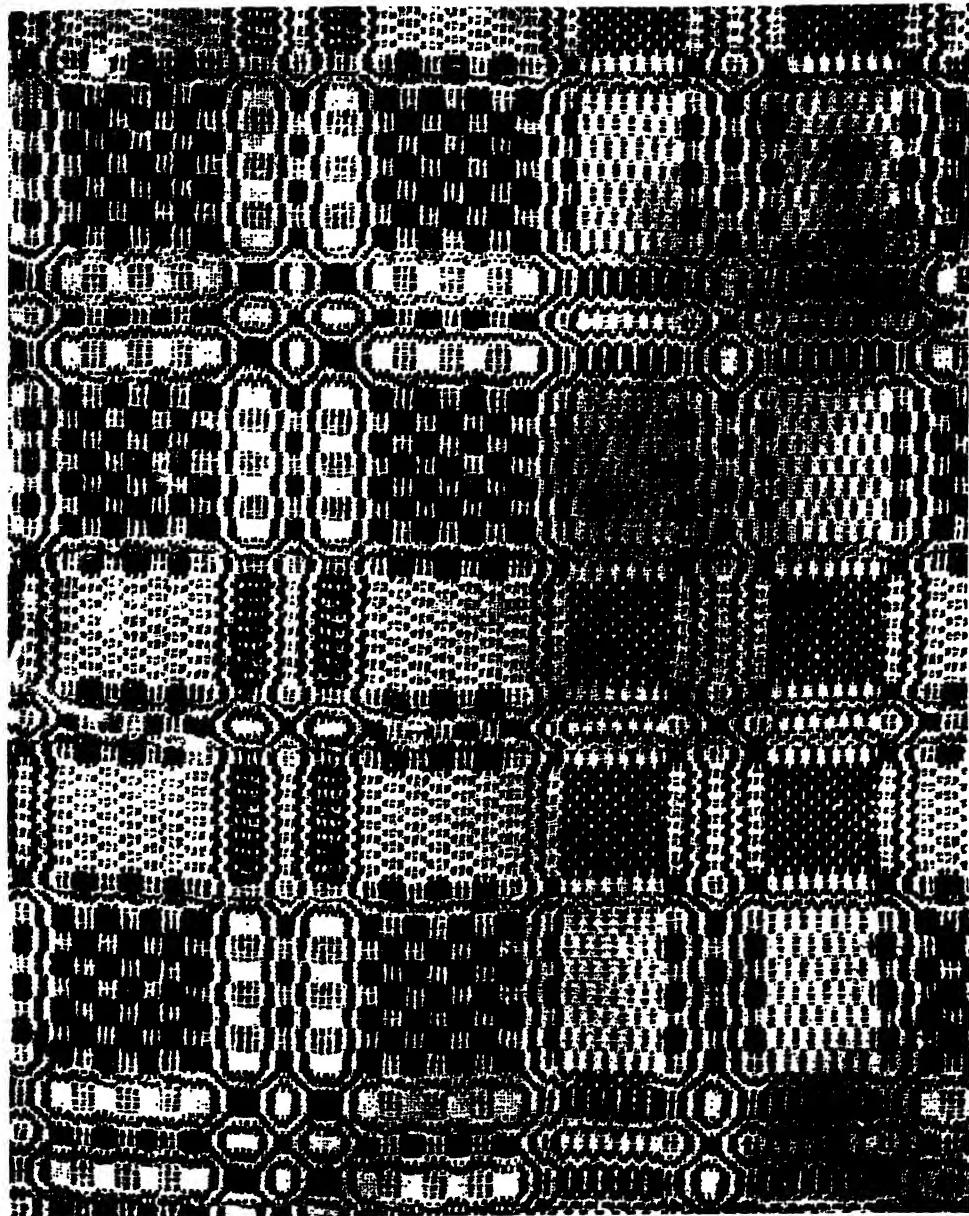
The first step in setting up the loom is the hanging of the harnesses. The directions given below are for the ordinary four-harness counterbalanced treadle loom, operated over rollers.

First suspend the harnesses in the position they are to occupy. This can most easily be done by carrying a cord under the top member of each frame and over the top-castle of the loom.

This cord should have a loop in one end through which the free end may be drawn; it is then easy to adjust the frames at the right height and to secure them in position with a loop-knot that can later be untied with a single jerk. A cord at either end of the set of harnesses is better than a single cord in the middle.

Begin the tie-up now at the top of the loom. Cut two cords each about two yards long, double them and attach by the centers to either end of one of two small rollers. Cut two cords each about two feet long and tie the ends together, making two loops. (The best knot for the purpose is the weaver's knot.) Attach these loops to either end of the other small roller. Pass the long double cords of the first roller over the large roller at the top of the loom—from back to front—carry them completely around the large roller and attach the second small roller by making the snitch-knot.

It is important to master this knot, which is absolutely indispensable to a successful tie-up. For directions see the end of this chapter.



(35) The White Mountain coverlet. Draft number 19.

Level the rollers, allowing them to hang about halfway between the large roller and the top of the heddle frames. When correctly adjusted tie them together so that they will not get out of position.

Next cut four long cords and four loop-cords, and hang the four harnesses in pairs over the small rollers in a manner similar to that described above, carrying the long cords around the roller each time and making the snitch-knot. The back harness should have long cords, the harness next it should have loops; the next harness long cords again, the front harness loops. This will bring the knots toward the front where they are easy to reach.

When the knots have been tied, release the cords by which the harnesses were originally suspended and adjust the snitch-knots so that the harnesses hang even and in the correct position.

The exact height at which to hang the harnesses may be determined by carrying a thread or string from the back beam of the loom through the eye of a heddle and over the breast-beam. When the harnesses are at the right height this string will be straight,—if the harnesses are hung too low it will sag in the middle, and if too high the string will be drawn up into a hump.

When you have hung and adjusted the harnesses, these should be tied together to keep them in position before you proceed to the tie-up of the treadles.

In the usual four-harness loom the harnesses are operated by means of foot-pressure on a set of treadles under the loom. The treadles are, however, not attached directly to the harnesses. They are hung from a set of levers or "lamms"—one for each harness—that are attached just under the harnesses to one of the "capes," or tall uprights of the loom. Each lamm should be attached to the corresponding harness by a double cord passing through a screw-eye in the center of the lower margin of the heddle frame and a screw-eye directly below in the top of the lamm. The knot to use is again the snitch-knot. The lamms should be adjusted at a slight upward slant and when leveled should be tied together. The tie-up to the treadles may now be made.

Some four-harness looms have four treadles only, and in that case one treadle is attached to each lamm—treadle number one to the front lamm, number two to the second lamm and so on as shown at (a) and (a') of the diagram. As the weaver draws down two harnesses together to make each 'shed' it is necessary with this tie-up to use both feet together in weaving.

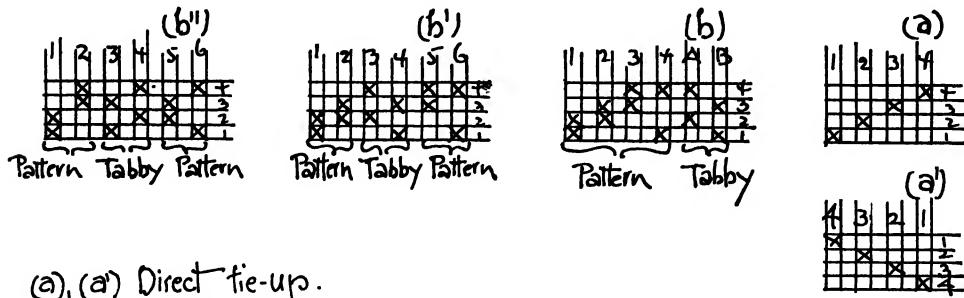
Most modern looms, however, are equipped with six treadles and it is far better to make a six-treadle tie-up, as this permits weaving with one foot at a time.

There are six treadles because there are six pairs in four harnesses, and therefore six sheds. Each treadle is tied to two harnesses and when depressed with the foot will bring down these two harnesses and will open one of the six sheds.

The sheds are 1&2, 2&3, 3&4, 1&4, 2&4, and 1&3.

It makes no difference in the operation of the loom which pair is tied to

Tie-Up for Four-Harness Weaving



M. M. Atwater

Diagram 1 (36)

which treadle, and different weavers use different systems to suit their own convenience as shown at (b) (b') (b'') of the diagram. For the purposes of this book the arrangement of treadles as shown at (b) has been adopted as a convention. By this system the treadles are numbered: 1, 2, 3, and 4, reading from left to right, and are used for the four pattern sheds. The two right-hand treadles are lettered A and B and are used for the two tabby sheds. By this system one weaves pattern with the left foot and tabby with the right. All four-harness treadlings as given in this book are written as for this tie-up. Treadle number one—the treadle on the extreme left—is tied to the two front lamms; treadle number two to the two middle lamms; treadle number three to the two back lamms; treadle number four to the front and back lamms;

treadle A to the second and fourth lamms and treadle B to the first and third. All these ties should be made with the snitch-knot.

The most convenient plan in making the tie-up is first to cut twelve cords that when doubled and attached to the eyelets in the lamms will be long enough to tie easily to the treadles. These should be fastened in correct position through screw-eyes in the lower edge of the lamms. Then twelve loops must be made and attached to the treadles directly under the long cords. The knots may then be tied, one after another—snitch-knots of course.

In making this tie-up care must be taken to adjust both knots on each treadle at the same tension so that the harnesses will be drawn down equally. The height at which to adjust the treadles is a matter of convenience and of loom construction. Experiment is the only guide. The treadles must be high enough so that when depressed they will bring the warp-threads down close against the shuttle-race, and not so high that they interfere with the lamms or are difficult to reach with the foot—with the ends a little above the upper edge of the heel-bar of the loom (if the loom has a heel-bar), is usually a convenient position.

In some small looms the treadles are attached at the front of the loom instead of at the back. The method of tying up is, of course, exactly the same. This arrangement of the treadles is not, however, advisable on a large loom as it makes a very heavy loom to operate.

In adjusting a loom before beginning a new piece of work, which is always advisable, the same system may be followed as given for the original tie-up; but it will take much less time because the ropes are all in place. Beginning at the top, level the upper rollers and fasten them together. Make sure the harnesses hang at the right height, level them and tie them together. Make sure the lamms are tied with a slight upward slant. Level them and tie them together, and finally go over the knots of the tie-up between the treadles and the lamms to make sure both knots on each treadle have the same pull and that the treadles are tied at the same height.

Making a tie-up for eight-harness and twelve-harness weaving involves the making of many more knots, but the system is the same. Each treadle is tied to bring down one of the sheds of the pattern, and the number of treadles

required and the number and position of the knots on each treadle depend on the pattern. No standard tie-up is possible in the more elaborate weaving.

Looms with the "jack" mounting are operated by a double set of lamms, as the harnesses are separately governed and each harness must be tied to each treadle—either to rise or to sink. An upper set of lamms is tied exactly like the lamms on a counterbalanced loom, and is tied up to the treadles to operate the sinking part of the shed. The lower set of lamms is attached to the jacks and is tied to the treadles to operate the rising part of the shed. Small looms with jacks are sometimes built with weighted harnesses so that no sinking ties are required, the harnesses keeping the threads down on the shuttle-race by weight, and only the rising part of the shed needs to be tied to the treadles. Such a loom is the little parlor loom shown. The crosses on the tie-up drafts indicate ties that cause the indicated harnesses to sink. On a loom with jack mounting and double set of lamms the X's are tied to the upper set of lamms and the blanks of the draft are tied to the lower set of lamms. On the parlor loom the blanks only are tied.

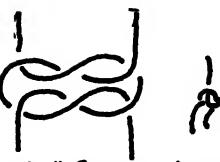
There are several knots used in weaving, as shown on diagram 2. The "square knot" and the "granny knot" are familiar to most people. The illustration will make the difference between these two knots perfectly clear. The square knot is used chiefly for tying together ends of weft, and is used because it can be taken out without untying. The square knot should never be used in tying warp ends, as it works loose in passing through the reed. To take it out without untying pull apart the two ends that lie close together, the knot will then become a double hitch that can be slid off. The granny knot cannot be undone in this fashion as it binds. It is used in tying string heddles, and has—as far as known—no other legitimate use.

The weaver's knot is used chiefly in tying warp-ends, as for this a knot is required that will not come undone. The weaver's knot is properly a "bowline" knot tying two ends instead of making a loop. It may be tied in several ways—the method illustrated in detail on the diagram is both quick and easy. Cross the two ends with the left-hand end in front of the other, and hold this cross between the thumb and finger of the left hand. With the right-hand "bight" of cord make a loop around the crossed ends, and then a

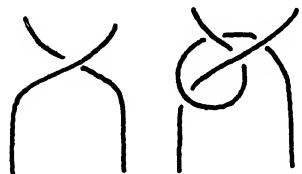
Knots used by Weavers



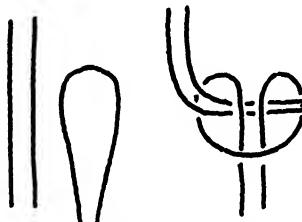
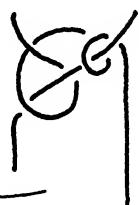
(a) Square Knot



(b) "Granny" Knot



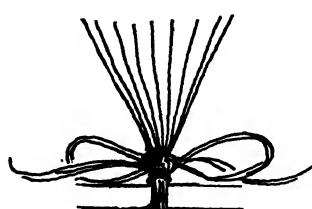
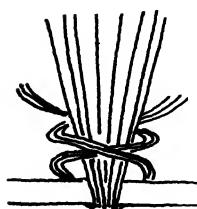
(c) Weaver's Knot



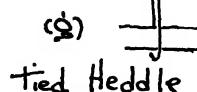
(d) Snitch Knot



(e) Loop Knot



(f) Bow Knot, as used for "ticing in"



(g) Tied Heddle

smaller loop around the free end on the right. Take this free end and turn it back under the left-hand loop, holding it firmly between the thumb and finger, along with the original cross. Draw the knot tight by pulling on the right-hand bight of the cord. This appears in description more complicated than it is in practice. It is well worth the time and bit of effort required to master it.

The snitch-knot is, however, the most important of the weaver's knots. Without this knot it is entirely impossible to tie up a loom correctly or to keep it in adjustment. It should be used for all ties on the loom.

The knot consists of two parts—a loop and a double end. To make the knot turn over the top of the loop till it forms a double loop which sailors call "two half-hitches," through this double loop pass both the two free ends and tie them together with a simple "bend"—like the first half of a square knot. Draw the loops tight, and the thing is done. This knot will never bind no matter what strain is put on it and no matter how long it remains on the loom. It may be adjusted at any height by sliding the hitch along the double ends and letting out or drawing up the bend at the end, as the case may require. Care must be taken, however, to tie the bend straight across, as otherwise one of the ends will pull through the knot and the adjustment will be lost. The sketch on the diagram makes all this clear.

The loop-knot shown at (e) of the diagram is used chiefly to tie groups of warp-ends after they have been drawn in through the heddles in order that they may not slip back. It is simply half a bow-knot and pulls out instantly.

The two sketches at (f) of the diagram illustrate the knot used in tying warp-ends to the apron or lease-stick attached to the cloth beam. A strand of threads is brought over the stick (or down through the eyelet in the apron), is divided into two strands that are brought up, one on either side of the original strand, crossed above and then below, drawn tight and finally tied in a double bow-knot. No hard knot is tied at all and by drawing out the bow-knot the strand may be released instantly.

Untying a knot is just as important as tying, and the general rule is never to tie a knot on the loom that cannot be taken out without difficulty. Disregard of this rule results in wasted cords that may have to be cut away, or in broken finger nails and loss of time.

The only place where a hard knot is allowable is in the tying of heddles—sketched at (f) of the diagram. All the heddles for a loom are sometimes made of cord and are then tied over pegs set in a board, but most modern weavers now use wire or flat steel heddles and use a tied heddle only on occasion, when it is necessary to correct a mistake in threading.

CHAPTER SIX

DRESSING THE LOOM

AFTER the long processes of preparing the wool and flax, the spinning and dyeing, skeining and reeling and spooling, our Dame Marjory of colonial days has come to the actual making of her coverlet.

But there are still a number of things to be done before the process of weaving can begin. First the warp must be measured off, of the correct length and of the necessary number of threads.

The weavers of the old day made their warps over the bars of a warping board, in the manner that is still current practice among the mountain weavers of the South. The warping board is a heavy board or stout frame in which are set a number of heavy pegs. It may be of any size the maker chooses. The capacity of the board—that is, the greatest length of warp that can be made upon it—depends upon the number of pegs and the distance at which they are set apart; this is the zigzag distance back and forth across the board between the first and last pegs.

The sketch indicates clearly the manner in which the warp threads are wound upon the board. A warp may be wound from a single spool or skein of material, but this is a long and unnecessarily tedious performance. It is usual to warp a strand of a number of threads, and such a strand is known as a "bout" of warp.

In order to preserve an orderly sequence among the threads the warp is wound as indicated on the sketch, with a cross between the top pegs. This cross is called the "lease." When a bout of several threads is warped some weavers pick up the lease between the individual threads before passing the bout over the pegs. This is, however, usually unnecessary, the cross between bouts being sufficient to keep the warp in order. A careful account must be

kept while warping, and at convenient intervals—say every fiftieth thread—a knot should be tied through the lease. In this way an accurate tally is possible.

When the desired number of threads have been warped it is customary to tie a cord loosely through the loop at the end. The warp is then released from the board by taking out the bottom peg, which should be removable, and

the warp is "chained"—that is, loosely looped together somewhat after the fashion of a crocheted chain.

Warp is sometimes called "chain" by old weavers.

The old books have much to say about proper sizing of a warp, and give recipes for a paste-like mixture of flour and water through which the chained warp should be passed. Modern weavers, however, rarely size their warps. It is not altogether clear from the directions in the Bronson book whether the sized warp is to be put damp on the beam and kept wet during the weaving or whether

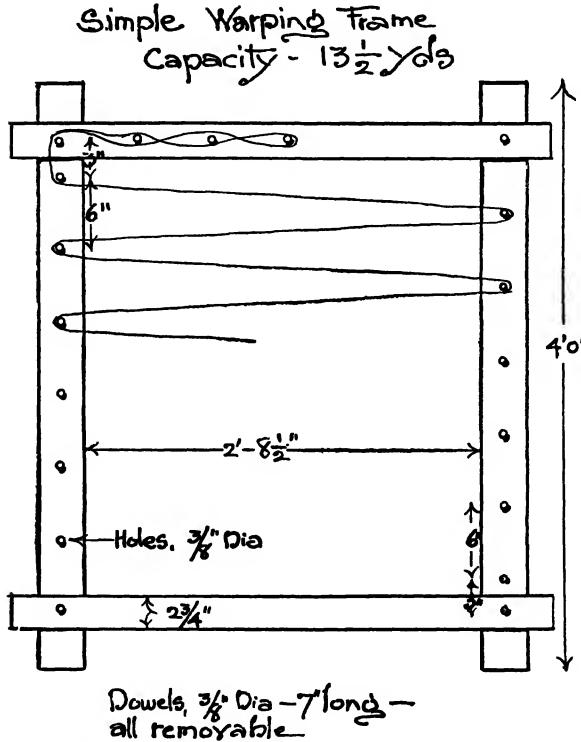


Diagram 3 (38)

it is to be dried—in which case it would have to be separated in some way by being passed through a reed. Directions for weaving flannel and also for linen state that the warp and bobbins should be kept wet. Sizing of fine linen warps was sometimes done with thin starch or with gum arabic water.

Modern weavers, however, generally omit the sizing process and proceed

from warping directly to "beaming." Beaming a warp is the process of winding it on the warp-beam, and may be done in several different ways. What is perhaps the easiest and quickest way is to space it correctly for width between the teeth of a raddle, then put a long flat stick—a "lease-stick"—through the loops at the end of the warp, attach this stick to the apron or cords of the warp-beam, and wind the warp on by turning the beam. Several people are required in this operation, for the warp must be combed out as beaming proceeds and must be held at a tension so that it will go on the beam smooth and tight and even. A loose warp-thread will later give the weaver great trouble and may ruin a piece of work. A number of lease-sticks or a long strip of paper as wide as the beam should be wound in with the warp.

Some weavers dispense with the raddle by threading the warp through the reed, which then acts as a raddle. And sometimes if a pattern and reed setting already on the loom are to be continued a new warp is tied, thread by thread, to the old warp and is then drawn through the reed and heddles and beamed in the usual way.

The modern method of warping and beaming is to use a sectional warp-beam and beam the warp directly from a number of spools on a spool-rack or "creel." This is a far easier and quicker process than that described above and can be accomplished single-handed, even on a large loom.

A sectional warp-beam is usually made to measure a yard in circumference and is divided by pegs into spaces corresponding to two inches in the weaving width of the loom. The number of spools of warp required for warping is the number of warp-ends in two inches of the proposed fabric. For instance thirty spools of carpet-warp are required to warp for pattern rugs in which the usual setting is fifteen threads to the inch. For a fine warp to be set at thirty threads to the inch sixty spools are required. The spools should be so arranged in the creel that they all turn in the same direction. In order to keep the threads from twisting as they are being beamed it is well to use a guide of some sort. The one usually used is a flat strip of metal the width of one section of the beam, punched with sixty holes or more. This guide stands upright in a slot in the back-beam of the loom and may be set above each section in turn. The threads from the spools should be threaded through the holes in the guide, beginning with the bottom threads and taking care not

to cross threads. The whole strand is then tied in the loop of the cord or tape attached to the section of the beam that is to be warped first. If the loom is provided with an indicator, set this at zero. Now revolve the beam the number of times required for the desired length of warp, holding the bout of threads between the fingers so that it will go on at a tension. If no indicator is provided simply count the number of revolutions of the beam. Nothing could well be simpler.

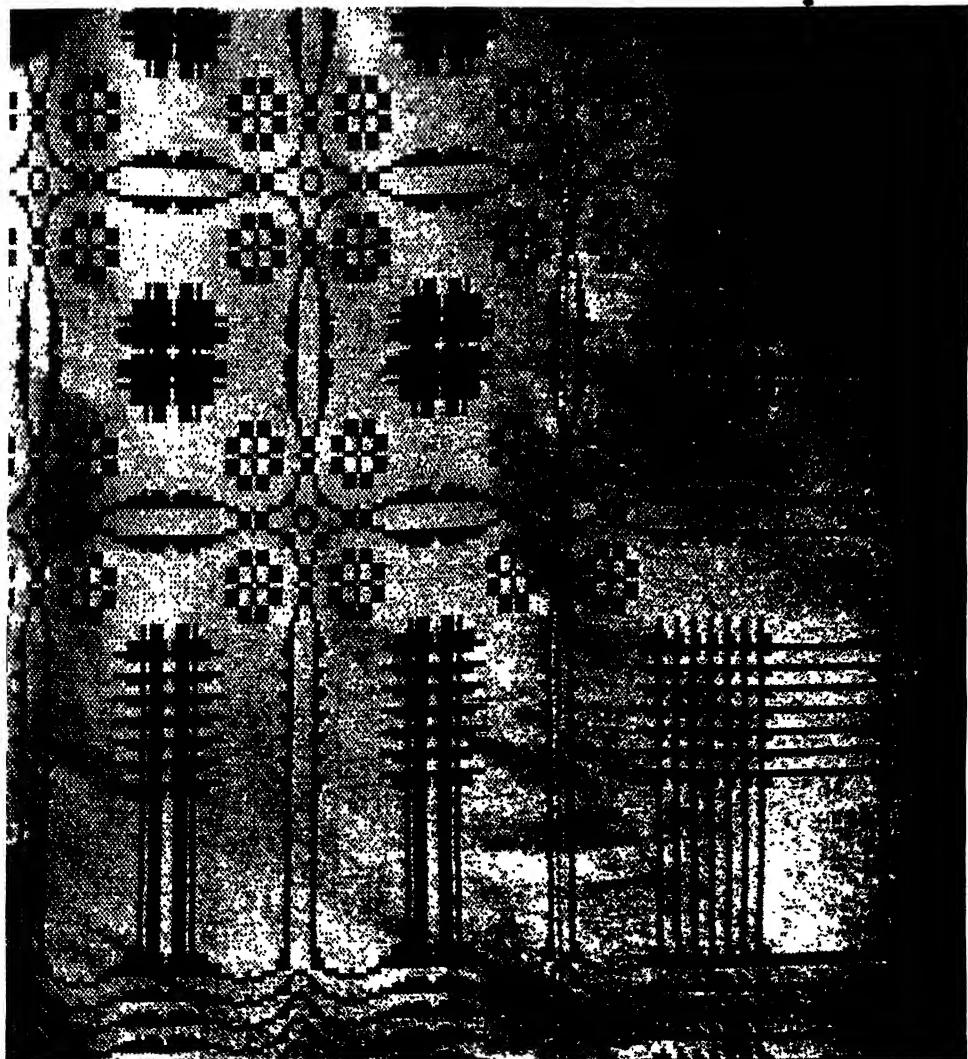
The first section of warp completed, draw down the strand of threads and loop it over one of the pegs with two half-hitches. Then cut the strand, move the guide over till it stands directly above the second section, tie the strand in the loop of the second cord and repeat the whole process. In this way prepare the number of sections required for the width of warp desired. In putting on a narrow warp that will not occupy the entire width of the loom it is advisable to warp the middle sections to the number required. For a twenty-inch width ten sections should be warped, and so on.

Warping is the bugaboo of amateur weavers, but it need not be. If a little care is exercised to make sure that all spools run easily and that threads are not crossed in the guide, even a long warp of very fine material may be beamed without difficulty by the sectional method. To make and beam a fine warp of many hundreds of threads by the warping board and raddle method is, to be sure, extremely troublesome, but it is unnecessary trouble. Provided the warp is wound on the beam smooth and tight and even, it makes no difference in the weaving what method was used in warping. The easiest method is the one to prefer.

After beaming comes the process of threading the warp through the eyes of the heddles. This is called "drawing in" or "entering" the warp.

Some weavers draw in from the front of the loom, using a hook for the process. This is quick and easy provided the weaver has a helper to stand back of the loom and select the proper thread, holding it behind the heddle where it can be reached easily with the hook. When drawing in alone, however, it is easier and much quicker to draw in from a position at the right-hand side of the loom, directly opposite the ends of the heddle frames. No hook is used, but each thread is doubled and thrust through the eye of the heddle in a manner similar to the process of threading a darning needle.

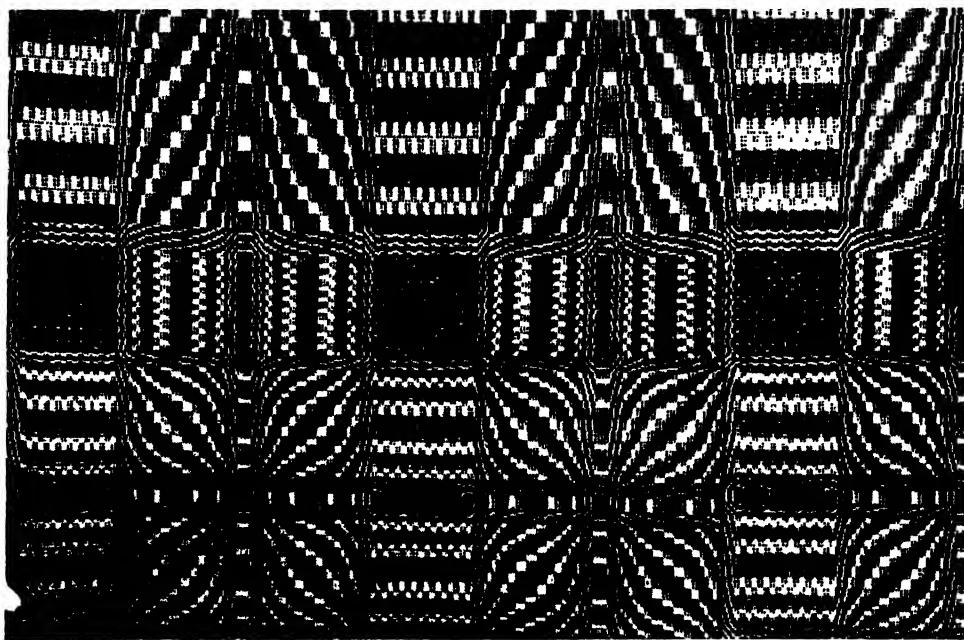
Care must be taken not to cross the warp threads, but to take them in regular order, and for this a lease in the end of the warp is useful, though not essential. Slight deviations are of no moment.



(39) Summer and winter weave (modern), pattern Puritan Maiden or Lisbon Star, with Pine-Tree border. See draft number 238.

Drawing in for a plain "hop sacking" or "tabby" weave on two harnesses is extremely simple: The first thread is threaded through the eye of a heddle on the front harness, the second through the eye of a heddle on the back harness, and so on—front, back, front, back,—all the way across the loom.

Drawing in for pattern weaving is a little more complicated, but is really not difficult at all. The threading draft represents graphically the position of each thread. The horizontal rows numbered 1, 2, 3, 4, etc., represent the



(40) Blazing Star (top) and Double Bow-Knot (bottom). Draft number 115.

harnesses, and each black square represents a thread drawn through the eye of a heddle on the harness indicated by the row in which the black square occurs. The draft is read from right to left.

Suppose the pattern selected is "Honeysuckle"—Draft No. 6—Diagram 1. It will be noted that the first black square of the draft occurs on the top row—numbered 4—of the draft. Push the empty heddles toward the left out of the way, leaving an open space to work in at the right-hand side of the loom.

Select the first heddle on the back harness, slip it along to the right, draw through the eye the first warp end and push the threaded heddle out of the way to the right. The second black square is in the row numbered 3. Select the first heddle on the third harness, thread it and push it along to the right. The first four threads are to be threaded: 4, 3, 2, 1. The next, 4, 3, 4, 3 and 2, 3 then 2, 1, 2, 1, 2, 1 and so through the pattern. When the end of the repeat is reached, thread the next repeat exactly the same, reading the draft always from right to left.

It is well to pay strict attention while drawing in and to proceed very slowly at first, as mistakes are easily made and are often very troublesome to correct later. It is necessary for good results that each thread be drawn in exactly as shown in the draft.

Check over each "repeat" of the pattern after drawing it in. The simplest way to do this is to gather together the threads constituting the repeat, separating them from the rest, and then to count the heddles on each harness and compare the results with the number of black squares shown on each line of the draft. In the "Honeysuckle" pattern there are in each repeat 5 heddles on harness 1, 8 on 2, 8 on 3, and 5 on 4. Having made sure that the repeat is correctly threaded, knot the threads together with a loop-knot to keep the threads from slipping out of the heddles.

When the whole warp has been drawn through the heddles according to the pattern, it must next be taken through the reed, or sley. This process is called "sleying" the warp and is done from the front of the loom and with the hook. It is usual to begin sleying with the middle threads of the warp so that there is no danger of getting too far to one side or the other. A warp designed to fill the reed may be sleyed from right to left.

The number of warp-ends to draw through each slot or dent of the reed depends on the number of slots to the inch in the reed and on the number of threads to the inch in the warp. A reed with fifteen dents to the inch is single-sleyed—that is with one thread to each dent—for ordinary rug weaving, the warp being ordinary four-ply carpet warp. A fine warp may be double-sleyed, giving a setting of thirty threads to the inch, or even triple-sleyed, giving a setting of forty-five. A very coarse warp may be sleyed through every other dent, giving a setting of seven and a half to the inch. For other

settings other reeds are required. The reeds modern weavers find most useful are: fifteen to the inch, twelve to the inch, thirteen, ten, eight and twenty to the inch. Their relative usefulness being in the order named.

Sleying is a simple process, but like everything else in weaving must be done with absolute correctness. If threads are crossed between the heddles and the reed weaving will be impossible till the mistake is corrected; a missed dent in the reed, or a dent with too many or too few threads through it will make an ugly streak the whole length of the fabric. There must be no mistake in sleying.

After sleying a repeat or two of the pattern it is well to gather the threads together and knot them with the loop-knot to keep them from drawing back out of the reed again.

After sleying comes "tying in" the warp ends to the canvas apron or rod attached to the cloth beam. The tying-in process is the same in either case. Bring the apron or rod up over the breast beam to within a convenient distance from the heddles. Allow a sufficient length of warp to tie easily, but do not be wasteful. Begin with the middle strand of threads. Do not take too many threads at once, as they do not tie evenly,—and do not take too few, as that is a waste of time. The number corresponding to about two inches of the reed is a convenient number.

Draw the threads through the fingers a few times to make sure that there are no loose ones among them, then take the strand down through the middle eyelet of the apron—or down over the middle of the rod, as the case may be—separate the strand into two equal parts, bring one part up to the right and the other to the left of the original strand; cross on top; down; cross underneath; up; tie with a double loop as in making a bow except that the first knot is omitted. (See diagram 2.) When the last strands have been tied it will be found that the ones tied first are slack. They must be retied. Loose threads or soft spots in the warp make good weaving impossible. Do not be satisfied with the tying till the whole warp has the same tension.

After the warp is tied and stretched is the easiest time to make adjustments in the tie-up, as described in the previous chapter.

CHAPTER SEVEN

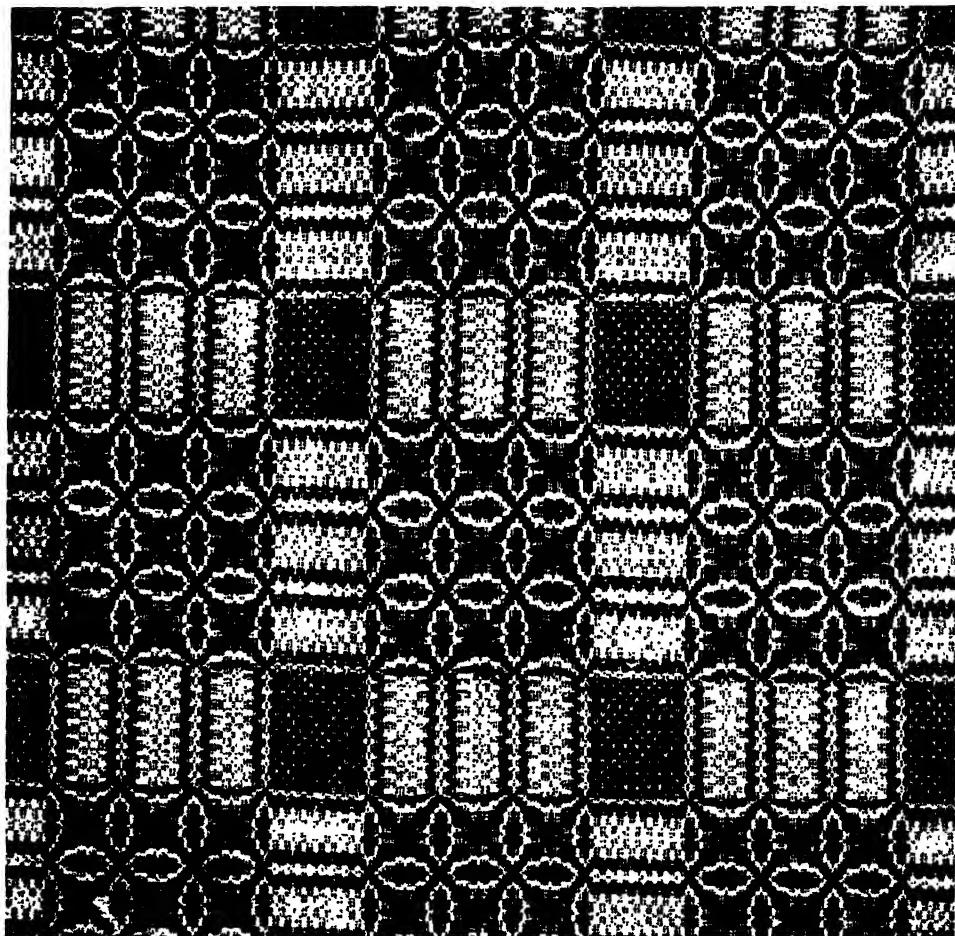
WEAVING

MISTRESS PRISCILLA, when she finally took her place on the high bench of her great loom—that was dressed now in the orderly veil of its stretched warp—and took up her shuttle to lay the first “pick” of her new coverlet, must have felt that she had come a long way to meet this exciting moment. Even for the modern weaver, who has had so much less of preliminary labor, there is a thrill in the beginning of an important piece of work. A lease stick through each of the two tabby sheds, a few strands of rags or coarse wool woven in to serve as buffer, an inch or two of plain tabby heading for a hem, and then a foot on the first pattern treadle opens the first pattern shed with its spaced openings. The shuttle darts smoothly through the little triangular tunnel, trailing behind it the thread of which the pattern will be made, and making as it goes a pleasant little whirring sound followed by the dull thump of the batten. There is a truly amazing pleasure in battering down against the heading this first shot of a fine new fabric that will be beautiful and useful for many, many years. The only moment to compare with it is the triumphant moment of laying the last shot. And between these two great moments lie pleasant hours of work. It is like running a race, with victory always at the end. Victory is good for the soul, and in this race one may always win, for the adversary is one’s own sloth and carelessness—an adversary that “takes beating” to be sure, so that victory tastes very sweet, but that may always be defeated if one wills.

The process of weaving—the actual throwing of a shuttle back and forth across the web—is the simplest part of the business of cloth-making. It does not even require any great manual dexterity. Beginners can do perfect weaving

if they are willing to take a little pains, but speed of course comes only with practice.

The tests of good weaving are correctness of pattern, evenness of beat and



(41) A simple arrangement of stars with a table. Similar to draft number 42.

nicety of edges. In all these points a machine excels the best hand-weaver, so in what—one may ask—does the superiority of a hand-woven fabric consist? It lies, of course, in the slight irregularities of hand-work that give character to the fabric, and in the freedom of design. Hand-work that is too perfect

approaches the uninspired perfection of machine work and is uninteresting, but no one need trouble to put in irregularities of "malice aforethought," as it is usually quite safe to weave as well as one is able. Work full of errors has only the character of sloppiness, which is far removed from beauty.

There are great differences in texture between hand-woven and machine-woven fabrics,—differences due chiefly to the light, loose lie of the weft thread in hand-weaving. This is very apparent on making a direct comparison between, for instance, a piece of hand-woven tweed and a piece of that made by machinery.

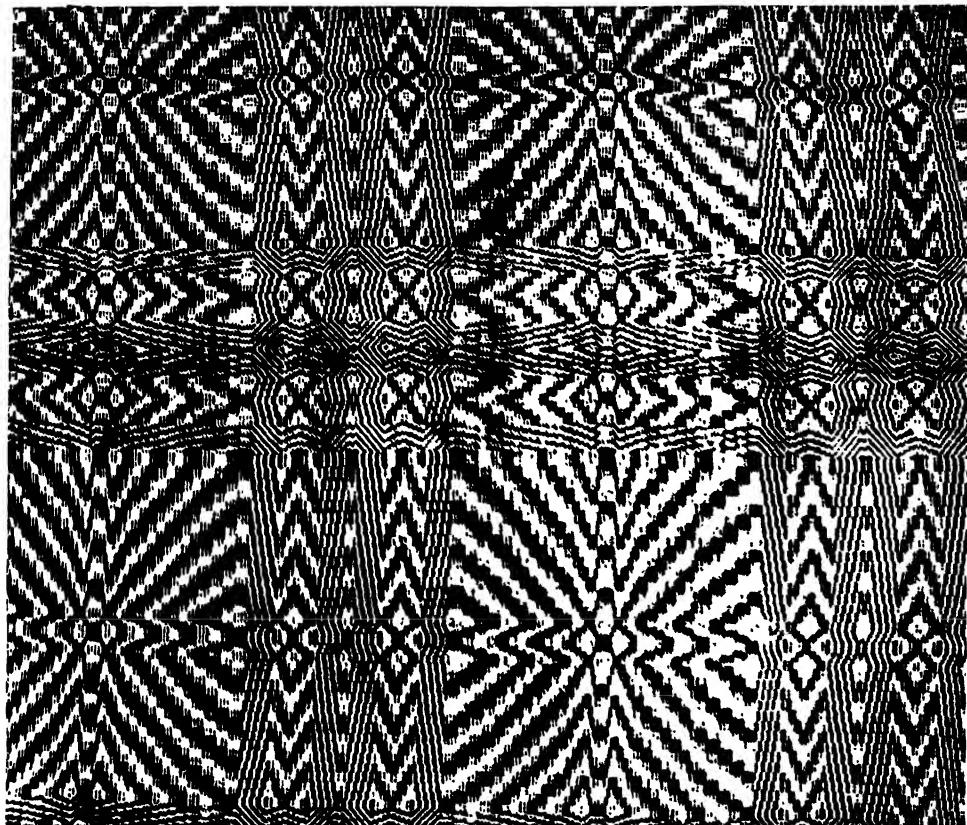
In hand-weaving the weft should be allowed to lie as loosely as it will without making loops. A beginner invariably either draws the weft too tight,—which narrows in the edges with consequent breaking of threads along the selvage—or else allows the weft to lie so loose that it makes bad edges. Of the two the first error is the worse and the more difficult to correct.

The beat with the batten must be regular or else the fabric will show streaks of close and loose weaving that, though not as disfiguring as lengthwise streaks due to faulty slewing, are still to be avoided. The weight of beat depends largely on the fabric to be produced; a fine silk or wool scarf requires a very light beat and some upholstery fabrics, rugs and similar materials are the better for severe pounding together of the weft. To a certain extent the beat is an individual matter. No two weavers have just the same touch with the batten and it is therefore unwise for two people to attempt to work on the same piece, unless it is a very coarse fabric in which small differences of texture are not noticeable.

The process of tabby weaving is as follows: Open the right-hand tabby shed by depressing treadle B. Throw the shuttle carrying the tabby thread—usually a thread more or less like the warp—from the right to the left hand through the shed, sliding it along the shuttle-race as close as possible to the reed. (The little boat-shaped hand shuttles that are the most convenient to use for fine weaving should be thrown with the flat side against the reed.) With the shed still open, beat vigorously with the batten, using the right hand. A sharp double beat is better than a heavy single beat, as there is less danger of breaking threads. Open the left-hand tabby shed by depressing treadle A. Beat again with the right hand. Throw the shuttle from the left to the right

hand through the shed. Beat with the left hand. Change to the B shed. Beat again with the left hand. Repeat.

By making a habit of throwing the "B" tabby always from the right and the "A" tabby always from the left, mistakes in the tabby alternation may be

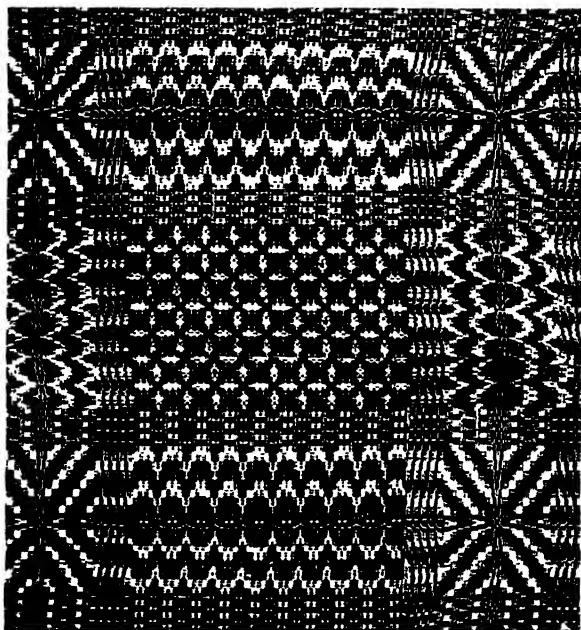


(42) A Sunrise pattern. Draft number 105.

avoided. This is important, as a wrong tabby shot is very disfiguring, and may ruin an otherwise perfect piece of work.

In overshot pattern weaving the ground of the fabric is woven in plain tabby weave with one shuttle while the pattern of overshot skips is woven with another shuttle—usually carrying a heavier thread than the tabby thread.

Tabby shots alternate with pattern shots. In detail, the first few shots of the "Honeysuckle" pattern are as follows: throw the B tabby, from right to left. Open pattern shed 3 by depressing treadle number 3 and throw the first pattern shot through this shed, from right to left. (The pattern shuttle should always follow the tabby shuttle.) Weave the A tabby with the tabby shuttle, from left to right. Open pattern shed 3 again and throw the pattern shuttle from left to right. Tabby B. Pattern shot on treadle number 2. Tabby A. Pattern shot on treadle 1, etc., etc.



(43) Lee's Surrender. Draft number 107.

Before proceeding far with the weaving it is well to examine the fabric closely for possible mistakes in drawing in or sleying, as these, if they exist, should be corrected.

A streak where the material looks too thin indicates a missed dent in the sley. A thick streak indicates too many threads through one dent. Sometimes these two errors occur close together and one compensates the other, in which case the mis-

take is easy to correct. If not, there is no course except to re-sley from the mistake to the nearest edge, and begin the weaving all over. If there are crossed threads, whole groups will refuse to tabby, and it will be impossible to beat. If two or three threads fail to tabby there is probably a mistake in threading. It may be nothing but a loose thread, which can easily be corrected by drawing tight the thread at fault and winding it around a pin in the heading. If not a loose thread, either (a) two threads have been drawn through the same heddle, (b) a thread has slipped out,

leaving an empty heddle; or (c) a thread has been drawn through a heddle on the wrong harness. It is evident that two threads threaded either 1, 3, or 2, 4, will rise and fall together and will not tabby. Such mistakes sometimes necessitate re-threading a part of the warp, but often they may be corrected by less severe methods. By tracing back the thread or threads at fault find just what the mistake is. In case (a) simply suppress one of the threads. In case (b) a thread may be added; take the end from a spool of warp thread over the back beam and through the empty heddle; draw it through the proper dent in the reed and attach it to a pin inserted in the heading; then from the back of the loom draw it as tight as the other threads and secure it to the warp beam by winding it back and forth between two pegs. Such an extra thread is troublesome, as it has to be united from the warp beam and retied each time the finished weaving is rolled up on the cloth beam. If there are many such mistakes, or if the warp is a long one it saves time to re-thread. To correct case (c) tie in a string heddle on the proper harness, break the thread that was threaded wrong and thread it through the eye of the string heddle and attach it to a pin in the heading.

It is not difficult to tie in a string heddle, but care must be taken to put it in the right place and to tie the eye exactly on a level with the eyes of the wire heddles on each side of it. Take a bit of carpet warp or stout linen thread a little more than twice as long as the distance from top to bottom of the harness frame; draw it under the rod that carries the lower end of the heddles—see diagram 2—draw up the two ends and tie together in a hard “granny” knot exactly on a level with the bottom of the eyes of the heddles on either side; tie another hard knot on a level with the top of the eyes; finally tie the ends around the bar that carries the upper ends of the wire heddles.

Occasionally one discovers two double threads side by side. This is usually an easy mistake to remedy. It occurs as a rule from two correctly threaded heddles having become transposed either in threading or in sleying. For instance, in a block threaded, 1, 2, 1, 2, 1, 2, the second pair may have been transposed with the following result: 1, 2, 2, 1, 1, 2. To correct, break the two threads at fault, transpose them and after tying a bit of warp to the ends so that they will be long enough—draw them through the reed and attach by winding around a pin inserted in the heading.

Suppressing a thread or adding a thread produces, of course, a mistake in the sley. In fine work, or in plain weaving, such mistakes show very badly and re-sleying is necessary, but in coarse pattern work they do not show.

Treadling directions, when written out, indicate the pattern shots only, the alternating tabby shots being understood. Treadling directions for patterns in the four-harness overshot weave as given in this book are written for the standard six-treadle tie-up and if any other system of tie-up is used must be transposed accordingly. Treadling directions for the "Honeysuckle" pattern are as follows:

Treadle	3, 2 times
	2, 1 time
	1, 1 time
	4, 1 time
	3, 3 times
	2, 3 times
	1, 6 times
	2, 3 times
	3, 3 times
	4, 1 time
	1, 1 time
	2, 1 time and repeat from beginning.

On looms with the four-treadle direct tie-up, the directions should be read:

Treadles	3&4, 2 times
	2&3, 1 time
	1&2, 1 time
	1&4, 1 time, etc., etc.

On table looms operated by levers, one for each harness, it is necessary to transpose the treadling to opposites, or else the cloth will weave wrong side up in the loom. Transpose as follows: for "1," read 3&4, for "2," read 1&4, for "3" read 1&2, for "4" read 2&3.

It is usually unnecessary to write out weaving directions, as most patterns are intended to be woven exactly as threaded or "as drawn in." They may be woven from the threading draft, beginning with the first block on the right and weaving the blocks in succession as they occur in the draft.

By "block" weavers mean an element of the pattern—in overshot weaving

or complicated a figure it may be. There is a quality of magic about the way in which the figures develop before one's eyes. It is like watching the building up of crystal forms, and obeys perhaps a similar geometric law.

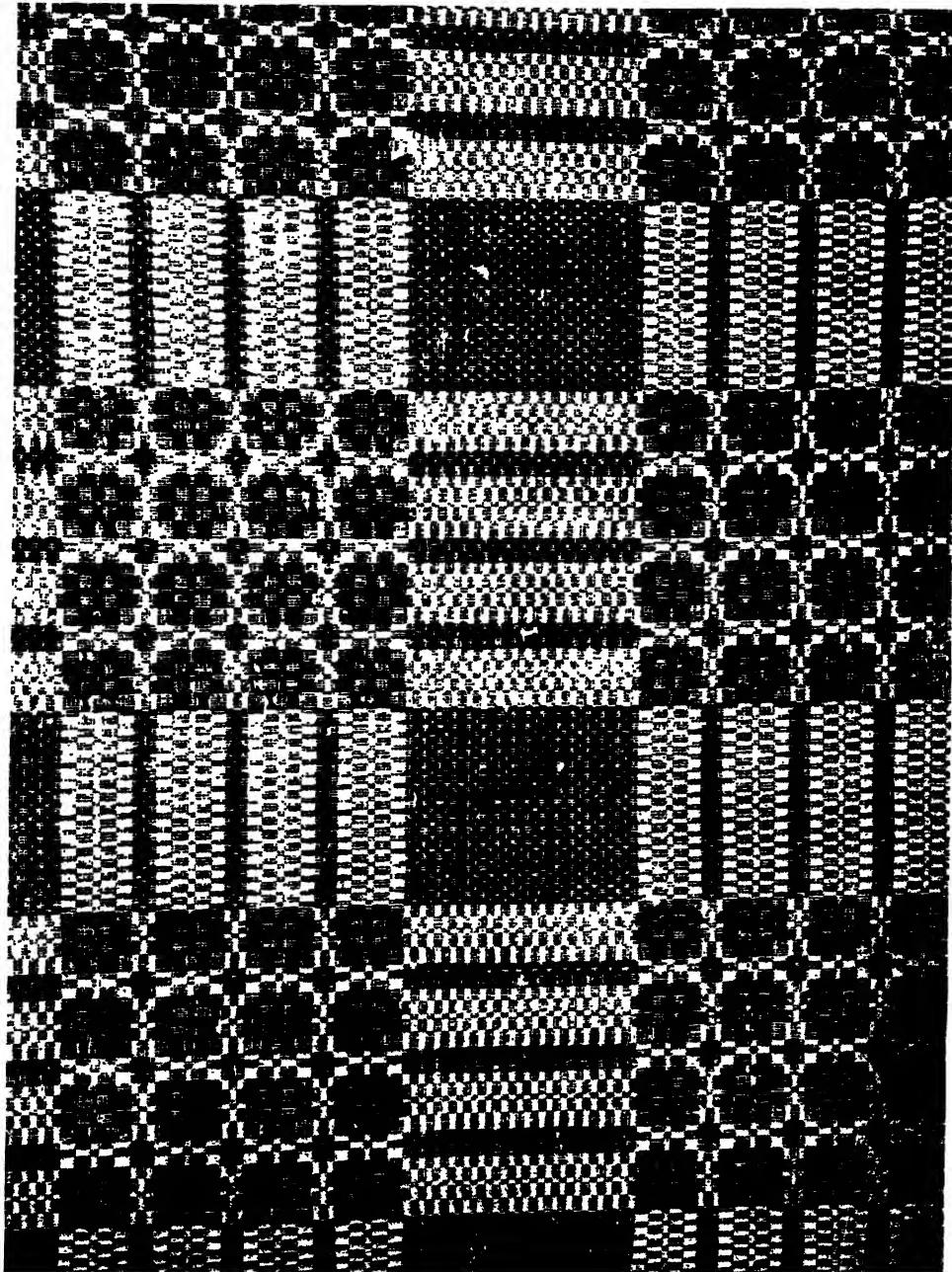
It will be found that patterns correctly woven as drawn in show diagonal lines that cross at intervals. One of these diagonals should run true from the first block through to the last of the pattern. The block to be woven next in order is always the one that carries along this diagonal, and if the diagonal breaks off or fails to run true the weaver may know a mistake has been made in the weaving.

Of course patterns may be varied in the treadling in any way desired. Some patterns are most satisfactory when woven in a way different from the normal system described above. These are the patterns woven rose-fashion—such as "Whig Rose," "Wreath Rose," "Forty-nine Snow-Balls," etc. Patterns woven in this manner do not show a diagonal, and it is necessary to have treadling directions to produce them. Of course the threadings used for these patterns may be woven as drawn in if desired. "Whig Rose," when woven as drawn in, is a form of "Lover's Knot"; "Forty-nine Snow-Balls" shows stars instead of roses, and so on. In a general way, any pattern of stars may be woven to produce roses. Many other variations are possible and the weaver has unlimited opportunity.

If a mistake has been made in weaving it should be taken out. Either "unweave" by reversing the order of treadling, or—if the mistake is a long way back and the value of the yarns is not great—cut the weft threads very carefully with sharp scissors or a razor blade, taking the greatest possible pains not to cut any warp threads. After cutting it is fairly easy to pull out the faulty work.

If a warp thread breaks, do not attempt to tie the two ends together. With the "weaver's knot" tie a piece of warp yarn to the broken thread, bring it through the proper heddle and proper dent in the reed, and attach it to the web by winding it around a pin inserted at the break. Be very careful not to get the thread crossed in doing this. After the thread has been firmly woven in, the pin may be removed and the loose ends of thread clipped off or darned in.

Knots in the warp may usually be woven in, though in fine plain weaving

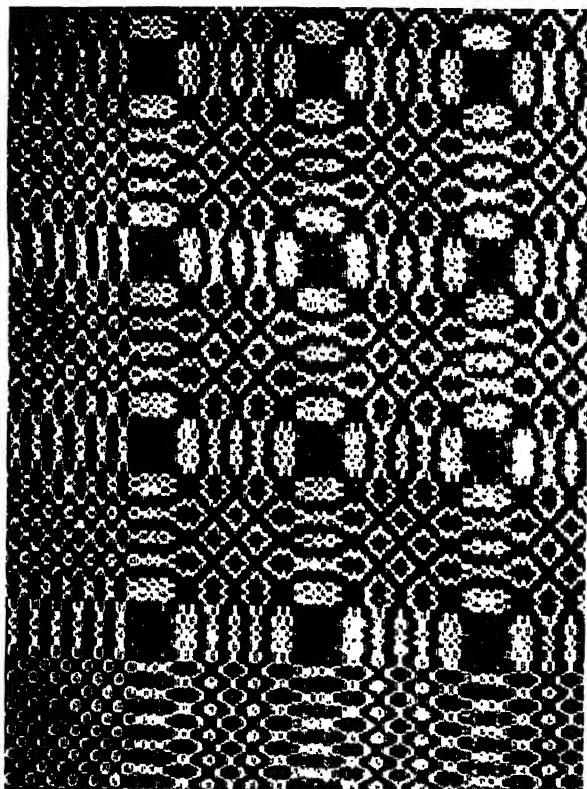


it is sometimes necessary to take them back again and again till the end of the particular piece of weaving is reached.

A knot in the weft, on the other hand, should never be woven in. Weft ends should be tied together with a square knot and when this knot appears

in the shed it should be pulled out, the two ends lapped under four or five warp threads, brought up to the face of the web, and clipped off later after they have been securely woven in.

When, as the weaving progresses, the finished web approaches so close to the reed that it is difficult to get the shuttle through the shed, the work should be wound up on the cloth beam. First release the tension by releasing the dog that holds the cloth beam, then release the warp beam, and wind up as far as desired, being careful not to bring the weaving too far back to be beaten



(46) Lover's Knot. Draft number 79.

properly. Releasing the dog on the warp beam too suddenly is apt to snap a number of threads if the warp is at all fine.

A new weaver is advised to set up a good cotton warp for the first experiments in weaving—Egyptian cotton for first choice and perle cotton number ten for second choice.

This should be threaded to a simple pattern—"Honeysuckle," "Russian

Diaper," "Solomon's Delight," "Single Chariot-Wheel" (the small draft, No. 65), "Star of Bethlehem," or some similar pattern.

The first piece of weaving may well be in strand cotton or in homespun woolen yarn, as these are the easiest weft materials to manage, and the first effort should be to weave the pattern "as drawn in." The piece when finished can be either a small square table mat or one side of a pillow-top.

After this it is well to weave a sampler, at least a yard long, with as many variations of the pattern as the weaver can devise, using different treadlings, combinations of color and of various yarns, etc., in order to get as much facility as possible. (Note illustration 61.)

Next a good thing to make is a runner or a towel, using linen weft. The body of the piece should be in plain tabby weaving and the borders in pattern work in colors.

What to make after that is a matter of choice—bags, chair-coverings, curtain material—there are many possibilities.

And here a word may be said about samples. A weaver should early in the game take a firm resolution to make and keep samples of every threading put on the loom, and in warping should allow generously in extra length for this purpose. In weaving samples it is a good plan to stop deliberately in the middle of a figure so that it will never be possible to use that piece of weaving for anything but a sample. Things have such a way of being sold or given away or made into something that if one hopes to keep a set of samples this is the only safe method. Samples mounted on cardboard and kept in a portfolio are always available for reference and are far more useful than samples stowed away in a drawer or box. Each sample should be tagged with the name of the pattern, materials used, etc.

For those who weave for profit a good set of samples is indispensable; and it is almost as necessary to weavers who weave for pleasure only.

CHAPTER EIGHT

RUG-WEAVING

To our forefathers cloth was a very precious thing—and no wonder! Every thread of it had to be grown—in the form of flax or in the form of wool—had to be prepared by the long and laborious processes of retting, hacking, carding and so on; must be spun, dyed and woven, and all by their own hands. Each yard of linen or Scotch ell of woolen cloth meant many patient hours of labor. Naturally as long as the threads of a fabric clung together some use was found for it. A suit of clothes was not, then, a quarterly nor even a yearly event, but often lasted a lifetime and descended honorably from father to son or even to grandson, being mentioned in wills as one might bequeath a house. At last, though, a time would come when nothing could be done with what was left of grandfather's suit of thicksett or grandmother's long-since threadbare bed-curtains except to cut them into strips and make them into rugs.

The rag rugs of the old day were often large room-size rugs woven in strips and sewed together. A good deal of care was taken in sorting the colors and in arranging a pleasing effect of stripes. Many of these old rugs are charming.

The ugly "hit-or-miss" rag rugs of the present day that sell for a dollar or so apiece in basement bargain sales are unworthy descendants of a worthy and not unhandsome product of the ancient hand-looms. It is hardly worth mentioning these trashy things except for the fact that to some people they represent "colonial" weaving. As a rule they are manufactured in Japan of inferior materials and are not worth even the small price at which they are sold.

Some modern rag rugs, of course, are excellent—but under the conditions



(47) A rug (modern) in an arrangement of the Dog Tracks pattern. Draft number 37.

of modern life the labor involved in preparing the rags, when waste material is used, is out of all proportion to the value of the product unless the work is done by the inmates of an institution where time is not of any importance.

Poorly prepared rags are not worth weaving. Short pieces of different kinds of material joined together with seams make a lumpy and unattractive rug. The only waste materials that are fit to be woven into rugs are large pieces such as sheets and blankets, damaged mill-ends, and remnants or lengths of cheap unbleached cotton cloth that may be dyed. These should be cut or torn into long strips, not needing to be sewed.

But even when well made, rag rugs, except in large sizes, are too light to lie well on the floor. They are scuffed up by every passing foot and never look tidy. And now that the clothes we wear and the household fabrics we use are so flimsy and so cheap, there is no very good reason for weaving rag rugs at all. Rugs made of woolen rug yarn are far handsomer and more durable than rag rugs, and so are rugs of modern cotton materials unknown to the ancients—cotton “roving” or rug-filler, cotton chenille and the like.

Rugs of wool were often woven in the old day. The Bronson book gives a number of “draughts” or patterns for wool floor-covering. Several of these are for two-block patterns in double-face twill on eight harnesses and some are in a simple “bird-eye” effect.

We have an interesting bit of ancient carpeting in linen, wool and rags made on a simple two-harness loom. The warp consists of alternate threads of heavy linen and a much coarser woolen yarn. The wool is in several colors arranged in stripes, and is set so close that the filling is entirely covered by it. Two warp-beams were probably used, as the tension and take-up of the two warp-materials were very different. The threading is as for plain “tabby” weave, the result of the warping being that all the colored wool threads are on one harness, and all the plain backing threads on the other. Weaving was done with two shuttles, one carrying a strand of fine-cut rags and the other a thread like the warp. By weaving alternately with these two shuttles a fabric was produced that is all colored wool on one side and all plain linen backing on the other. The stripes of color run lengthwise of the fabric. This technique is good for the making of stair-carpeting or for hall runners.

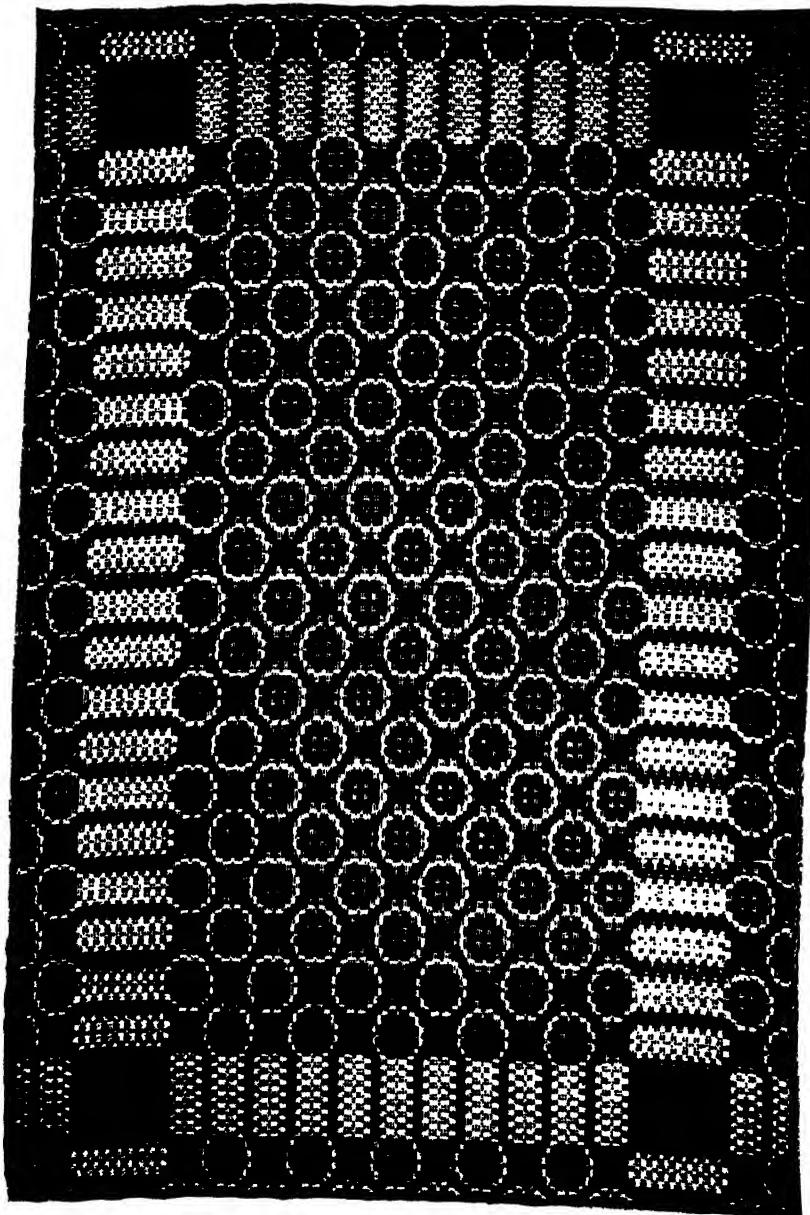
A similar weave for the making of small rugs is used to a certain extent

by the southern weavers of to-day. As a rule a heavy cotton warp in two or more colors is set up and pattern effects of two blocks may be produced even on simple two-harness looms. Wool rug yarn may be used in place of cotton for warp and makes a heavier and handsomer rug. Cotton roving is often used for filler instead of rags, as this material is cheap and of a uniform size. For a pattern in squares of color it is merely necessary to interchange the relative position of the colors as required. For instance, for a rug patterned with squares 48 threads wide, in, say, brown and tan, thread the first 48 threads with brown on the front harness and tan on the back harness; thread the second block with tan on the front and brown on the back harness; and so continue. Weaving is done as in the old piece described above—by putting in alternate shots of coarse and fine weft material. If this alternation is preserved for the whole length of the rug a striped effect will be the result. To weave squares, two shots of fine weft should be woven in succession to shift the blocks.

Weavers of the old day seem rarely to have used the "overshot" coverlet patterns in their carpet-making. These patterns are, however, in quite general use for the purpose among modern hand-weavers, and give excellent results if the pattern is well chosen and suitably arranged for this special purpose. A pattern consisting of either very large or very small blocks should be avoided, and a pattern—such as "Dog Tracks"—in which all blocks are about the same size proves most satisfactory. The "Diamond" threading known to all hand-weavers makes an excellent rug when arranged with a large wheel, or a "Sunrise," a "Bow-Knot" or other figure in the corners. The pattern variously known as "Sunflower" and "Ladies' Delight" is delightful for fairly large rugs. "Lee's Surrender" and "Mary Simmons" or "Queen's Delight" are great favorites also.

In arranging a pattern for rug-weaving it is usual to follow the opposite plan from that used in arranging a pattern for a coverlet. For a coverlet the large and showy figure—if one is used—occupies the main part of the piece, with a border made of a smaller, finer figure. For a rug, on the contrary, the center should be in a fine, close figure and the large figures should make the corners and borders.

The "summer and winter weave" is perhaps the most satisfactory of all the



(48) A rug (modern) in an adaptation of the Queen's Delight pattern. Draft number 61.

colonial weaves for the making of rugs. The fabric produced by this weave is extremely durable because close-knit and with no long overshot skips. Woolen yarns, cotton rug-materials, and even rags may be used in this type of weaving.

CHAPTER NINE

THE WEAVING OF A COVERLET

To modern hand-weavers, as to the Dame Priscillas of the old day, the weaving of a coverlet is the peak of achievement. To have woven a coverlet is to have graduated into the craft, and there should be a society among weavers with the weaving of a coverlet as the initiation.

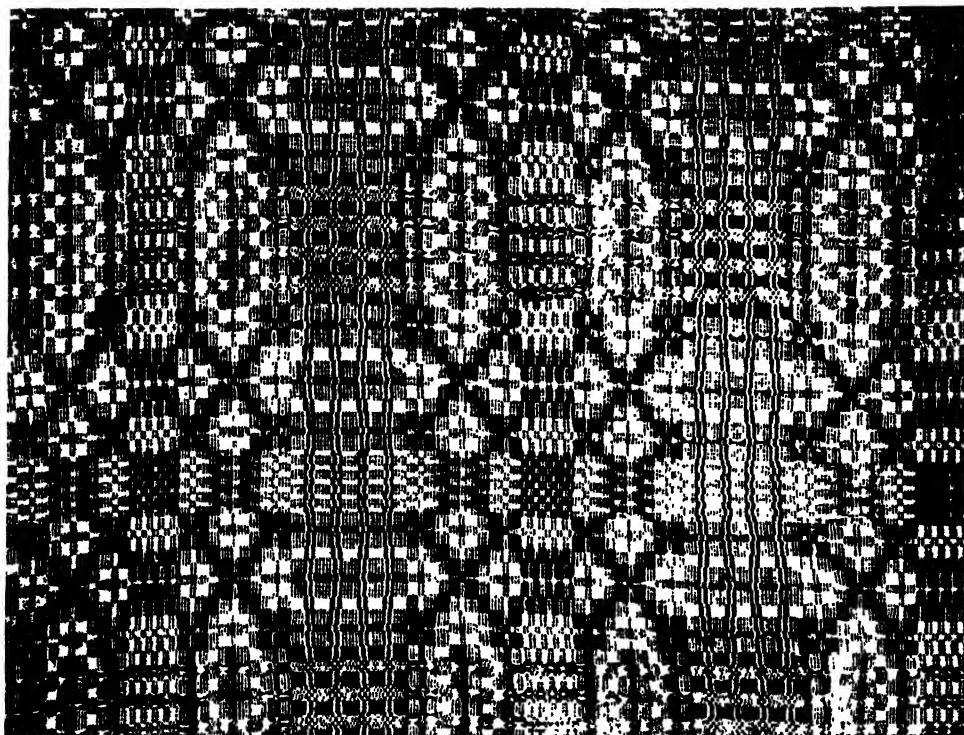
It is not difficult to weave a coverlet, and it does not even take very much time. Many new weavers have begun their weaving with a coverlet and have made a success of the effort. No one with a good loom and so much as the rudiments of knowledge need hesitate to undertake it.

Choice of pattern and choice of materials are first considerations. They go together and can hardly be determined separately though, in a general way, any "overshot" pattern may be woven for a coverlet in homespun woolen yarn over an Egyptian cotton warp. This may be called the classic coverlet. The choice of pattern depends very much on the room in which the coverlet is to be used—a large, formal room seems to demand a severely formal pattern, a room with plain walls and hangings should have a coverlet in large and rather elaborate figures, a room already treated decoratively should have a coverlet in a small, simple all-over figure or else should be woven in white or a very subdued color-scheme, for nothing is more distressing than a too "patterny" effect in one's surroundings. For the rest, the pattern may be any design that pleases the fancy.

Coverlets are usually woven in two strips and seamed up the middle. In the overshot weave this seam shows so little—if the weaving is correct—that it can hardly be detected. In the summer and winter weave and in double weaving the seam is much more prominent, and for coverlets in these weaves it is better to make three strips,—a wide strip for the middle and a narrower

strip on each side. This method may also be followed for coverlets in the overshot weave, of course.

Coverlets as a rule are made eighty-four or eighty-eight inches wide, in two strips, and the strips are woven three yards long. Most good coverlets are



(49) Pattern similar to Rose of Sharon. An ancient coverlet in the Newark Museum.

made with borders, and these borders are as a rule not less than ten inches nor more than fourteen inches wide. The height of the bed on which the coverlet is to be used should always be considered in arranging the border.

As the method of arranging a pattern on the loom for the weaving of a coverlet may give a beginner trouble it may be helpful to go through the process here.

Suppose Egyptian cotton warp—24/3—set at 30 threads to the inch, has been chosen for the foundation, and the pattern is to be "Velvet Rose"—draft

147. If the strips of the coverlet are to be set forty-two inches wide in the reed the warp will consist of 1260 threads, and should be warped at least eight yards long. The border will occupy between 300 and 420 threads, and eight threads must be reserved for selvage. This will leave 952 to 832 threads for the pattern. The seam of a coverlet should be as inconspicuous as possible, and though it may run either through the center of the square "table" or through the center of the rose figure the latter position should by all means be selected. The block at the center of the rose is the 1-4 block between threads 146 and 152 of the draft. The threading should begin with thread 147. From this point to the end of the draft there are 80 threads. Four repeats of the pattern will require 904 threads and with the 80 threads of the half rose at the beginning will make 984 threads. If this arrangement is decided on, the border will be only nine inches wide, and the rose figure will come in the corner of the coverlet next to the border. It would probably be better to put in three full repeats and part of a fourth repeat, ending the threading at thread 110 of the draft. We shall then have:

Half figure.....	80 threads
Three full repeats.....	678 threads
First part of figure.....	110 threads
<hr/>	
868 threads	

This will allow a border of thirteen inches, which is not too wide a border for a large coverlet.

Most weavers prefer to thread the seam edge of the strip of coverlet on the right-hand side of the loom. This is convenient for several reasons, but if the loom stands so that the light is better along the left-hand side it is better to put the seam edge on the left. In weaving special pains must be taken with this edge. No selvage, of course, is threaded along the seam and this makes it difficult. If this edge is bad the seam will show badly in the finished coverlet.

In treadling the bottom border must, of course, be woven first, then the pattern, taking care to begin the treadling just where the pattern ended in the threading. Finally the top border. Two strips must be woven, as nearly alike as possible.

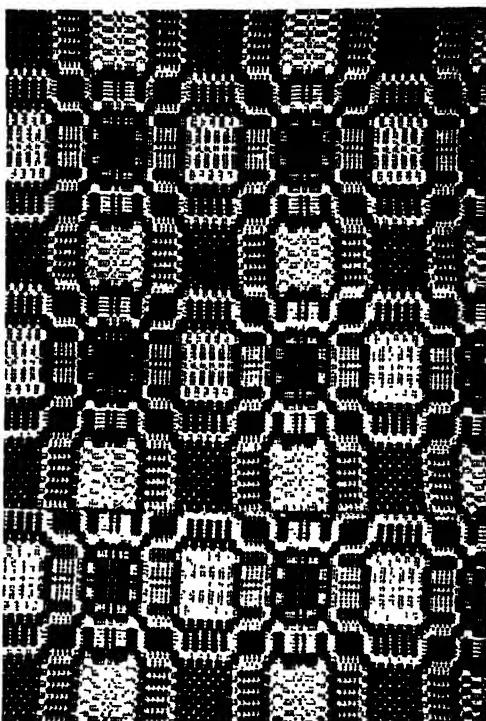
A beginner should always weave a fairly large piece, say a pillow-top or a large sample, before beginning the coverlet in order to get into the swing of the beat. Otherwise the first part of the weaving may be either more closely or more loosely woven than the rest. It is an excellent plan to make a paper gauge, giving the exact measure of a repeat of the pattern as woven, and to measure the repeats as the weaving progresses. If the figures do not match exactly when the coverlet is put together the effect will not be good.

It is unwise to take the first strip off the loom while weaving the second as it will shrink differently and the seaming will be difficult.

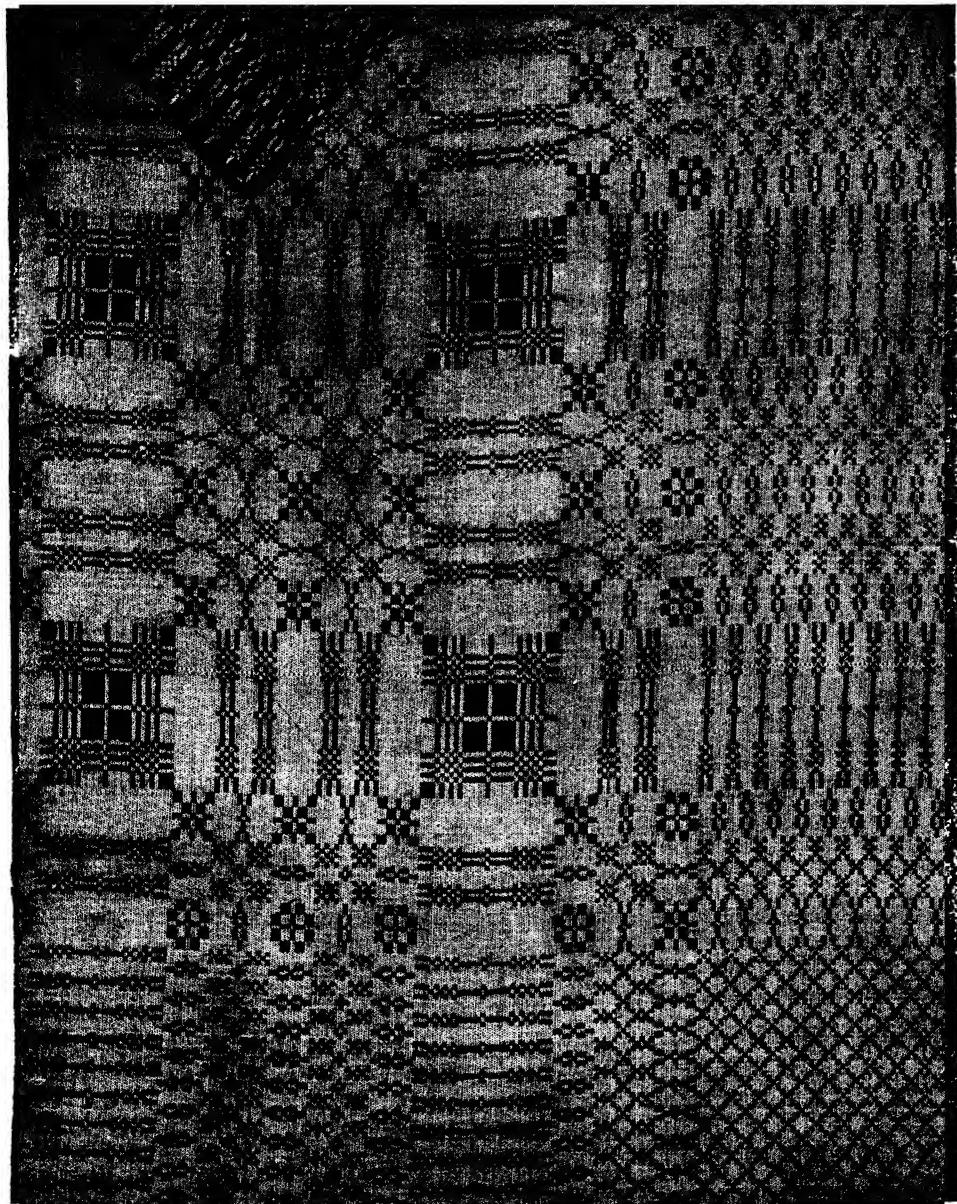
The strips of a coverlet should be woven generously long to allow for shrinkage. An extra half yard in length is not too much. Of course the place to end depends somewhat on the way the figures come out.

Some weavers prefer to weave a rather short coverlet and then make an extra strip of weaving to cover the pillows. Some weavers omit the top border. It is a matter of taste.

As to the border to select, again this is a matter of taste. In a general way, any pattern may be used with any other as a border, but of course some possible combinations would be very ugly. For a coverlet, which as a rule has a fairly large figure, a small pattern is best for border. The one most frequently used is the "Diamond" or "Russian Diaper." This goes well with practically any coverlet pattern. For patterns written partly on opposites the little diamond pattern given at draft number 4 would be the most interest-



(50) Coverlet pattern Velvet Rose.
Draft number 147.



(51) Lover's Knot, an ancient rose-colored coverlet in summer and winter weave, with a simple Diamond border. Draft number 198.

ing and suitable border. For patterns altogether on opposites either "Turkey Foot" (draft number 3) or the diamond at draft number 5 would be better.

A border should match the pattern with which it is used in the matter of "return." The pattern and the border, that is, should center on the same block. This occasionally means rewriting the draft to be used for the border to conform to the pattern. Further notes on this matter will be found in a later chapter.

Many patterns include a small diamond figure of some sort, and when this is the case this particular figure is the one to use for a border. Thus the "Single Chariot-Wheels," pattern number 65, has a diamond figure that begins on thread 59 and takes in the last sixteen and the first sixteen threads of the draft. This repeat of thirty-two threads should be used for a border with this pattern. The "Wreath Rose" pattern, number 93, also has a small diamond figure of eighteen threads. The repeat should be taken from thread 141 of the draft to and including thread 158.

In weaving the border should, of course, be treadled "as drawn in," and woven as deep as the side border is wide.

After the coverlet comes from the loom it should be seamed, using warp-thread for the sewing and simply catching together the warp-threads along the edges in an over-and-over stitch, not too close together. The same may then be pressed with an iron, a damp cloth being laid over the fabric. The coverlet should then be hemmed on the ends with a tiny hem.

Many ancient coverlets were finished with woven fringes and some with knotted fringes, tied in. As a rule, however, the plain finish is the best for a coverlet in colored pattern weaving.

CHAPTER TEN

FINISHING HAND-WOVEN FABRICS

IN the old days woolen cloth was usually finished by running it through a fulling mill. Such a mill, as noted elsewhere, was built at Rowley soon after the weaving industry was first established in America and was in use till a mere hundred years ago. Other types of fabrics were treated in various more or less complicated ways after weaving. Here is an account from an old book of the practice in finishing "thicksett" or fustian—what we call corduroy:

"Velvets and corduroys, after they come from the loom, have their flushed parts cut up, the former into a uniformly smooth surface and the latter into ridges. The piece is spread for this purpose on a long table, and the person who conducts the process runs the point of a sharp instrument called a plough along each furrow, or center of each flushed stripe. The piece is then exposed on a table, to the action of a pair of strong brushes. At each end of the table is a roller, on one of which, the cloth is wound before the operation, and the other, with a very slow motion, receives it as it comes from the brushes. Next the loose fibers are singed off by drawing its surface over a cast-metal cylinder made red hot. The piece is then immersed in hot water, and rubbed well with a hand brush; after which it is dried, singed, and again put through the brushing process; all of which operations are repeated three times in the same order of succession.

"The piece is next put into a tubful of hot water, with which are mixed a little vitriol and pearl ashes. This ley is called a chemic. When it is taken out of the chemic, it is spread on the grass, where it lies for two or three days, when it is again put through the chemic, and rubbed well with a hand-brush, to remove any fire stains or brown spots that may be remaining. Two or three days more exposure on the green, will prepare it for dyeing the darker colors;

but for the lighter shades it will require a little more bleaching—to give the piece a glossy appearance, and raise the pile, it is rubbed over with beeswax, and afterward polished with a smooth stone."

This sounds like heroic treatment, and one wonders anything was left of which to make whatever garments were to be made. Most weavers would, I am sure, gladly leave to the mills and to machinery the making and finishing of corduroy.

The linsey-woolsey fabrics and the tweeds made by modern weavers are as a rule finished simply by thorough washing and light pressing with a flat-iron. They need nothing more. But they do need this, and this washing is a part of the manufacturing process. Coverlets and figured upholstery fabrics do not require washing, but scarfs, material for clothing and also all linen pieces must be finished in this way. Linen, especially, needs a very thorough soaking and should be "ironed dry" in order to bring out the luster and beautiful texture of the fabric.

CHAPTER ELEVEN

DRAFT-WRITING

THE subject of textile design is a large one, and highly technical; whole libraries are devoted to it. But among the dictionaries of weaves, the works on fabric analysis and so on the hand-weaver finds little that is of practical value to him. To look through such a library, however, gives a certain perspective—a realization of the relation hand-weaving bears to the great, intricate craft of which it is a part. A study, for instance, of the complicated weaving plan for the production of a cheap wool shoddy cloth for overcoats, or a bit of cheap "lace" curtain material sends us back to our hand-looms with a certain feeling of humility, and at the same time with a new pride in our ability to produce far more beautiful and serviceable fabrics by far simpler means.

Textile design as it relates to hand-weaving of the American colonial types is simple enough, and acquaintance with its principles is necessary to any one who hopes to do really distinguished work at the loom. A weaver should be able to write drafts from samples or photographs, to transpose drafts, to test drafts on paper and correct mistakes, to arrange and modify drafts for special purposes, to increase and diminish drafts, to design borders, and to invent original patterns.

For the business of draft-writing the following supplies are required: engineers' cross-section paper—some sheets ruled ten and ten to the inch and some ruled sixteen and sixteen to the inch; a drawing board of good size; a bottle of waterproof drawing ink; an engineer's lettering pen. The Payzant pen is the best tool and may be had in several sizes of which Number 5 is the most convenient. No previous training in drawing is required.

It is the practice of careful weavers to test drafts on paper before putting

them on the loom. In this way mistakes may be corrected before they are made, and disappointment may be avoided.

For a concrete example, set down across the top of a sheet of sixteen by sixteen cross-section paper the little threading draft given on diagram 5 (Chapter Twelve, Illus. 57). It is not enough to set down a single repeat—one repeat and a half at least are required in order to judge of the pattern.

The perpendicular spaces in the paper now represent the threads of the warp, and the pattern may be "woven" over these spaces with the lettering pen exactly as it would be woven with the shuttle on the loom, except that the pattern grows from above downward—as the ancient Greeks wove—rather than from below upward as we are accustomed to do.

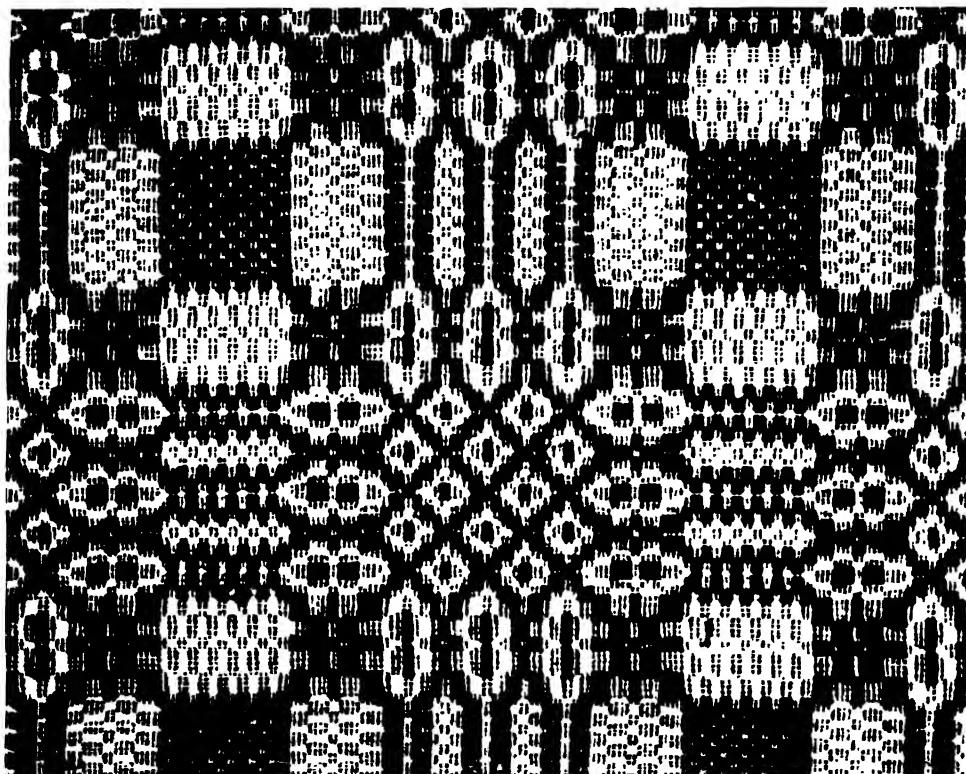
The first block of the pattern is a 1-2 block of four threads. Square this by drawing three pen-strokes across the four first spaces of the paper, and carry these three pen-strokes across all the 1-2 skips of the pattern. Next is a four-thread 2-3 block which should be "woven" in the same way. Next a four-thread 3-4 block and a four-thread 1-4 block. After these comes an eight-thread block on the 1-2 shed; this should be squared with seven pen-strokes. Each pen-stroke, representing as it does a pick or shoot of weft, must be carried all the way across the drawing, making all the skips on the particular shed being woven. In this way, squaring the blocks in succession all the way across the draft, you will obtain the entire pattern. If the drawing is correct it will show a forty-five-degree diagonal from the right-hand upper block to the left-hand lower one. This is an unfailing guide.

The half-tone part of a pattern is usually indicated on a drawing by rows of dots. These occur where the pattern weft tabbies over the block on either side of the block being woven.

It will be noticed that we square the blocks with one less shot of weft than the number of warp-ends under the block. This is to allow for the overlapping. When—as in some of the patterns on opposites—the blocks do not overlap the number of shots of weft should be the same as the number of warp-ends.

To write a draft from a sample is a very simple matter indeed. It is not quite so easy to write a draft from a photograph, as one cannot count the threads as a rule, and proportion is the only guide.

In writing a draft it makes no difference in the result on which block one elects to begin. Wheel patterns and similar figures are often written from center to center, patterns with a "table," or plain square of alternating blocks, are usually written table first; but this is merely a convention. All that mat-

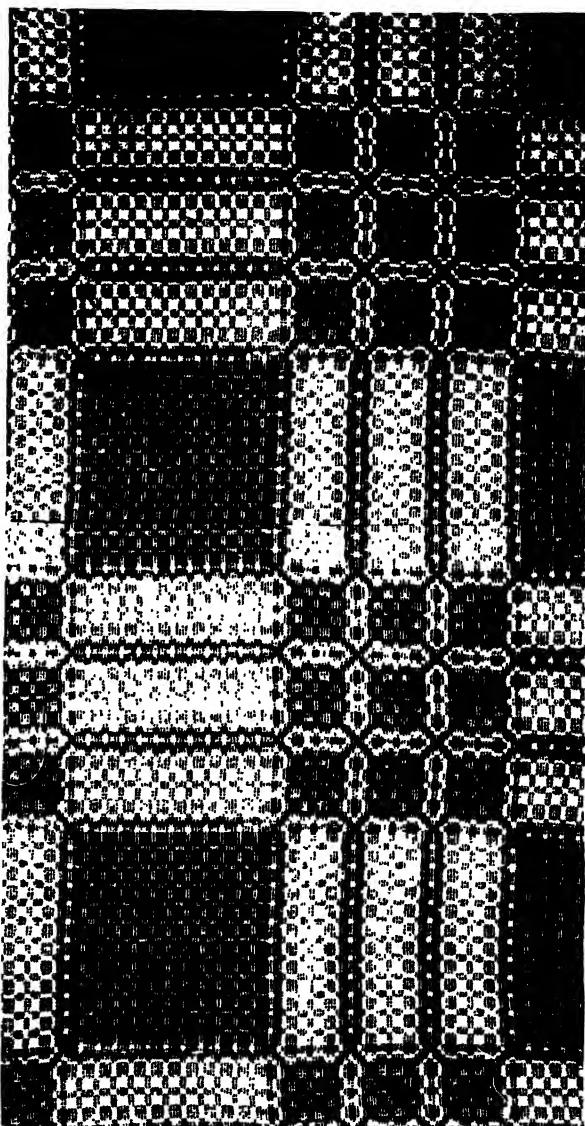


(52) Wheel and Diamond Square. An ancient coverlet from New Jersey.

ters is to make certain of including all the blocks up to the point where the pattern begins over.

One chooses, let us suppose, the pattern illustrated. This has a small table with which it is just as well to begin. The upper right-hand block of the table is a six-thread block. It may be written on any one of the four pattern sheds. Suppose we write it, 1, 2, 1, 2, 1, 2. As a 2 is the last thread of this first block and must also be the first thread of

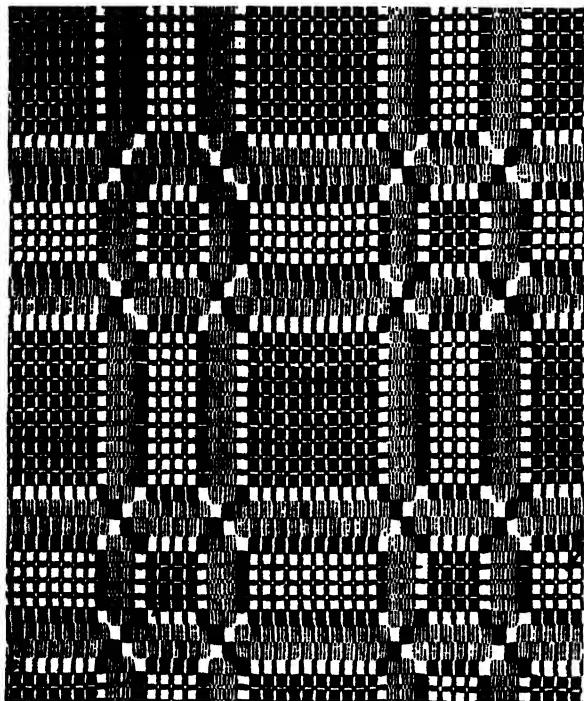
the next block it is plain that the second block is a 2-3 block. Five threads are under this block, of which the first has already been written. We will therefore write it (2), 3, 2, 3, 2. The third block is on the same shed as the first, and must therefore be written (2), 1, 2, 1, 2. In this way the entire table is written, with alternating 1-2 and 2-3 blocks of five threads. The last block of the table—the lower left-hand one—should be of six threads like the first. The threading used for the old sample in the photograph is faulty, as will be noticed, and this block appears to be of four threads only. It should, however, be made symmetrical with the first. The last thread of the block will be a 1. The next block will therefore necessarily be a 1-4 block. There are ten threads under it and it will end on a 4. Next is a nine-thread block on the only shed so far unused—3-4. The center of the little star-figure is on the 1-4 shed, of course, and next follows a nine-thread 3-4 block, and the lower left-hand block of the star is a



(53) Granite State. Draft number 56.

ten-thread 1-4 block again. It is simple to proceed. The end of the repeat will be reached when the diagonal along which we have been counting off the changes reaches the upper right-hand corner of the next square table figure.

It will be noticed that blocks that follow one another in regular sequence are of an even number of threads. Blocks on which a pattern "returns" or goes back are always of an uneven number of threads. This is necessary in order to preserve the tabby alternation. The draft-writer has the choice between making these blocks one thread larger or one thread smaller than the others.

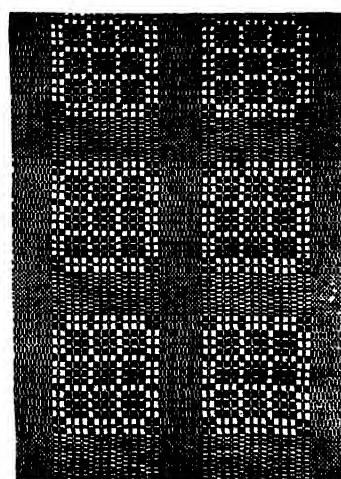


(54) A pattern on opposites. Draft number 13.

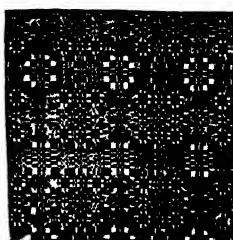
There is one class of patterns that sometimes proves very puzzling not only to those unfamiliar with weaving but to old weavers as well. These are the patterns "on opposites."

Four-block patterns drafted in the ordinary way show three tones or "values" of color when woven—the color of the plain tabby ground (usually plain white), the color of the overshot blocks, and on either side of each block a "half-tone" block made by the interweaving of the pattern weft with the tabby ground. Certain two-block patterns are so drafted that this half-

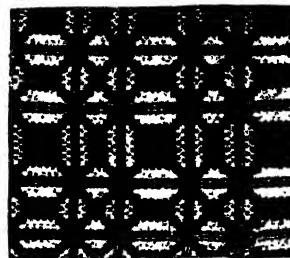
Patterns that are woven otherwise than as drawn in—the rose-patterns, for instance—may give the novice in draft-writing some earnest moments. It is helpful to draw a diagonal through the centers of such a pattern and then to write the blocks along this line quite as though they had been woven in the usual way.



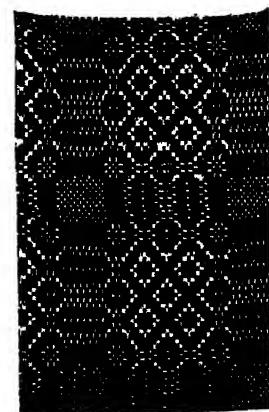
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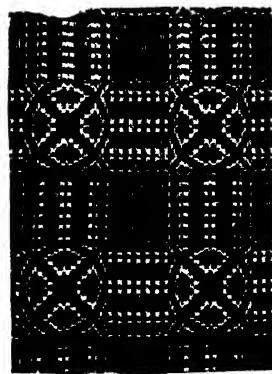
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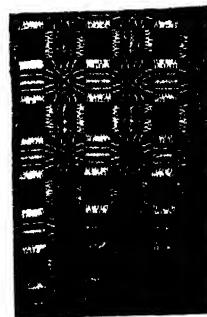
3



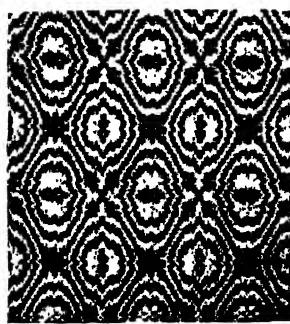
6



7



5



8

(55) 1. Queen's Patch. Draft number 123. 2. Lover's Knot on opposites, Wade collection. Draft similar to number 92, but woven as drawn in. 3. King's Flower. Draft number 48. 4. Patch-pattern from Kentucky. Draft number 131. 5. Cross of Tennessee. Draft number 11. 6. Old South County. Draft number 29. 7. Christian Ring. Draft number 80C. 8. North Carolina Beauty. Draft number 114.

tone is entirely eliminated, the pattern thread making skips first over and then under the foundation, not interweaving with it at any point. "Monk's Belt," "Everlasting Beauty," and others of these patterns will be found on Diagram 25, Illus. 89. This technique gives a great sharpness and brilliancy to the pattern.

American colonial weavers do not seem to have fancied two-block patterns, and in the old work these are comparatively rare. We have, however, a large number of patterns of four blocks in which the figures are written in this way, and we also have many other patterns in which there is an odd accent on some part of the figure due to writing a few blocks not in the usual sequence but in direct opposition.

The "Patch-Patterns"—Series V of the drafts,—are patterns written entirely on opposites. A study of the illustrations will show clearly the result of this technique. Patterns that owe their effect and much of their special charm to being written partly on opposites are "Pine Bloom," "Lee's Surrender," and "Old South County." Many others appear among the patterns in this book.

Patterns written in this manner for four-harness weaving are not wholly logical, and result in curious inconsistencies or "accidentals" in the half-tone portion. These accidentals through faulty arrangement may be very disfiguring, but when cleverly arranged enrich the effect. There is no hard and fast rule for drafting these patterns and they are never entirely symmetrical, extra threads having to be added now and then to preserve the correct tabby alternation. Usually in treadling these patterns the tiny blocks that separate two adjoining blocks "on opposites" are disregarded.

The thing is of interest as it is one of the refinements of four-harness design, and a clever use of this technique is one of the charms of American weaving.

Four-block patterns on opposites without the accidentals require the use of eight harnesses. A few drafts for weaving of this sort are given in the Bronson's "Domestic Manufacturer's Assistant." The effect is very beautiful, but examples of this weave are extremely rare. A modern piece in this weave is illustrated (95).

It occasionally happens that the pattern selected for a particular piece

of work refuses to arrange itself within the number of warp-ends of a particular warp. Large patterns involving several hundred threads are quite likely to give trouble. It is, however, usually possible to add enough threads or to take away enough threads to meet the requirements. A pattern made up of small star or rose figures with a table is of course very easy to alter; to make it smaller one merely omits one of the small figures or a pair of blocks from the table, or both; to increase the pattern one adds one small figure or a pair of blocks to the table, or both. There are, of course, limits to this process, as to continue it too far would be to change the character of the pattern. The blocks of a pattern may be increased by adding a pair of threads to each block, and this is perfectly satisfactory in a pattern where all the blocks are approximately of the same number of threads, like "Ladies' Delight," draft 137. Patterns, however, made up of blocks very different in size must be increased proportionally or the character of the pattern will be lost.

Borders are important, and when well designed add very much to the beauty of a piece of weaving. As noted elsewhere, in a general way any pattern may be used as a border with any other, but some results of a hit-or-miss use of this principle would be very unbeautiful. A small figure should be used as a border with a large pattern. The "Diamond" figure in one or another of its various forms is always a satisfactory border for a coverlet pattern. The threading used should conform with the pattern, that is, the "returns" of border and pattern should be on the same shed. It may of course be written to return on any one of the four pattern sheds.

The blocks of the border should bear some relation to the blocks of the pattern. As a rule they should be written the size of the smallest blocks of the pattern. If, for instance, the smallest blocks of a pattern are written to cover six threads a "Diamond" border of four-thread blocks would be out of scale and would make the rest of the weaving look coarse.

In arranging a pattern for rug-weaving it is customary to use a small figure for the main part of the rug and to use a large figure for the border. The "Mary Simmons" rug, illustrated in the chapter on rug-weaving (48), will give an idea of this. The method is good also for table runners and panels of any sort.

The accompanying illustration shows a small figure—the "Rose-Diamond"

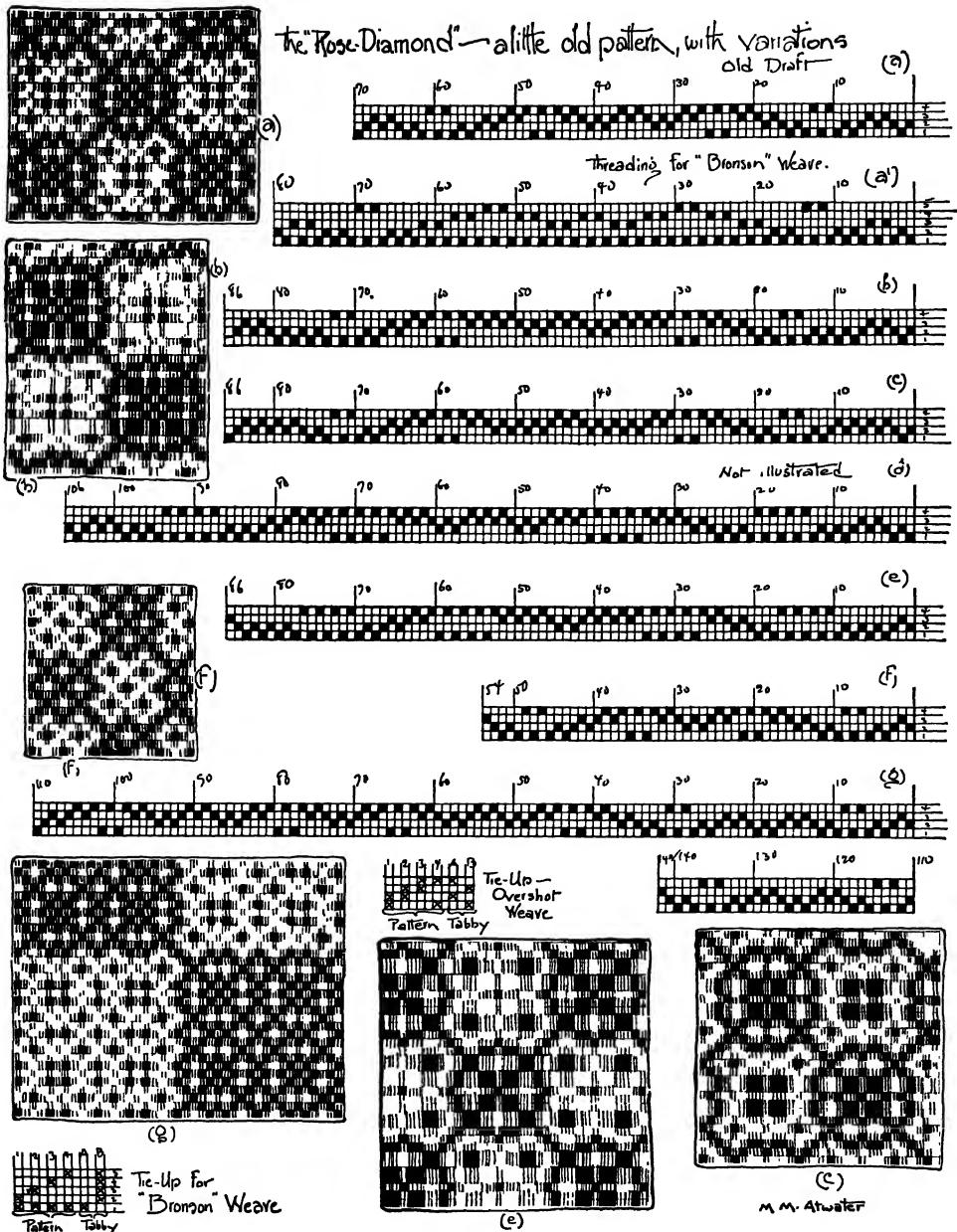


Diagram 4 (56)

pattern—together with a number of variations made simply by small changes in proportion. Other modifications might easily be made, and variations of treadling produce many other effects.

In designing a set of draperies for a bedroom—coverlet, rugs, curtains and linens—it is advisable to use the pattern in a different way for each piece; otherwise a distressing monotony will result. The coverlet should, of course, be the most striking and elaborate piece. In this the pattern should appear in largest size and greatest elaboration. For rugs a small figure should be used for the body of the rug with a single large figure in each corner to make a border. If the pattern has no small figure that can be used in this way the center of the rug may be threaded in the repeat used for the border of the coverlet. In a similar way, parts of the coverlet pattern, or modifications of it, should be used for curtain borders, for towels and the like.

Though we use the old patterns there is ample opportunity for originality in the designing of such a group of pieces.

CHAPTER TWELVE

NOTATION

SIMPLE weaving is so much the same from age to age and from land to land that an experienced weaver can usually decipher drafts for this kind of work, no matter what system is used in writing them down. Some forms of notation are, however, much more readable and convenient than others.

Practical considerations have governed the choice of the so-called "graphic" system of notation for the writing of the drafts in this book. Strict adherence to tradition would have involved using one or another of the systems used by the old weavers, but as these would appear unfamiliar to modern craftsmen the use of them would have impaired the usefulness of the material.

Various systems of notation are illustrated on the accompanying diagram. At (a) is shown a simple pattern written after the graphic method—each warp-end indicated on the draft by a black square. The spaces between the horizontal lines represent the harnesses, and the exact position of each thread is clearly indicated. There are several advantages in this form of draft: it means something to the eye, giving a hint of the pattern and making it comparatively easy to recognize errors; it gives at a glance the number of warp-ends in the repeat, and—what is most important of all—it is definite and unequivocal. The only disadvantage is that for a long pattern a good deal of paper is required—a fatal drawback in colonial days when paper was a rare thing, but in our day unimportant.

The draft at (b) is the same pattern as at (a), written in figures in the manner common among old English weavers. The harnesses are represented by four horizontal lines and the threads are represented by figures written along these lines. The perpendicular lines mark the divisions between blocks of the pattern. This system is a good, workmanlike system and shows defi-

Systems of Notation for threading Drafts The Four-Harness Weaves.

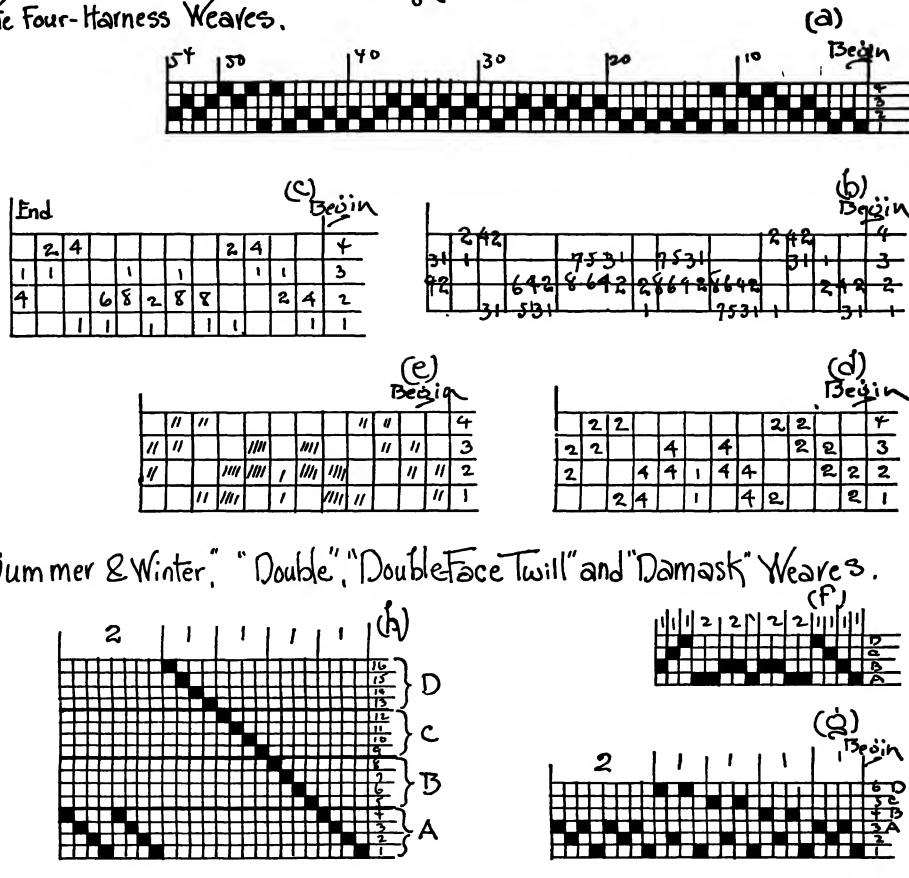


Diagram 5 (57)

nitely the position of each thread. If carelessly written, however, it is difficult to follow.

At (c) is a form of draft clearly derived from (b). The harnesses are, however, represented by spaces between the horizontal lines rather than by the lines themselves. The spaces between perpendicular lines represent the blocks of the pattern, and the number and position of the threads in each block are indicated by two figures, the first and the last threads of the block. This form of draft was common in old-time New England, and was used by Weaver Rose of Rhode Island. A draft written in this way occupies less space than either of the foregoing drafts, and this system is recommended for the taking of notes in museums or exhibitions where it is impractical to carry large sheets of cross-section paper. A draft of this sort when carefully written is as definite as a graphic draft, but it does not mean much to the eye so that errors slip in and are not easy to detect.

The drafts at (d) and (e) are similar,—in one case figures are used and in the other case dashes. Both these forms are still current among the older weavers—especially the weavers of the South and Southwest.

Though similar to the forms at (b) and (c), these forms are not nearly as satisfactory. They are indefinite, for there is no indication on the draft through which of two harnesses the first thread of each block is to be threaded. If one takes such a draft as this, noting it down on squared paper according to the graphic system, a number of inconsistencies will at once appear. Corresponding blocks on either side of a center will differ in size by two threads, and the pattern will not be symmetrical. It is also impossible to judge by a study of the draft exactly how many threads will be required for each repeat. Two weavers threading from the same draft might elect to read the draft differently and would arrive at different results. The (d) and (e) forms of draft, therefore, are unsatisfactory and should always be translated to graphic form and corrected before being put on the loom.

The old "draughts" shown in the illustration are from what appears to be part of a letter. It was found folded up between the pages of a notebook kept by a weaver of a hundred years ago. Unfortunately the fragment is not dated. The threadings are some of them written in dashes and some in figures. The part of the draft written in 0's is the tie-up draft, and the

figures below indicate the order of treadling. This method of indicating the weave is similar to the system used in an old Scotch book on weaving, and the word "doornock," used for twill, is a word used by Scotch weavers. The word "hookabag" on the old draft means apparently what we call "huckaback," as the threading and tie-up are for this weave. The economy of paper is noticeable.

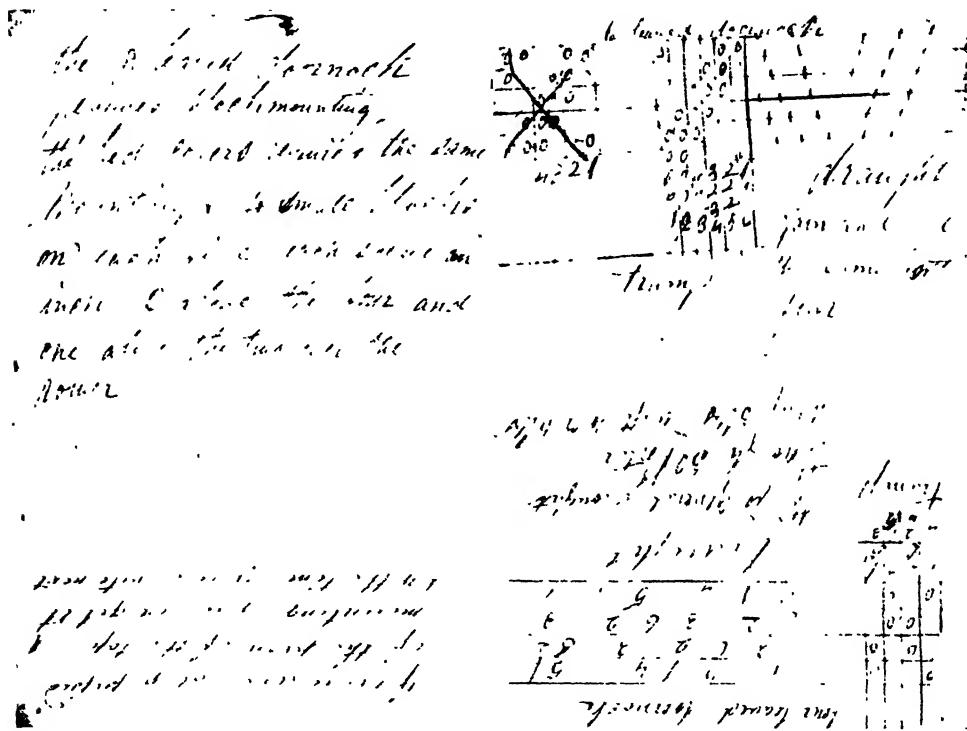
The overshot drafts in this book are all written with the same tabby—1-3 against 2-4, "odds and evens." This is the system preferred by most weavers, but it is, of course, possible to write these drafts with tabby on 1-2 and 3-4, or even on 2-3 and 1-4. Drafts written in either of these ways appear confused to the eye and are somewhat difficult to follow, but the result of weaving is of course exactly the same as though the more familiar tabby were used. Occasionally one receives a draft written in one or the other of these ways, and in that case it is advisable to transpose to the accepted form. For instance, a draft with the 1-2 and 3-4 tabby will have pattern blocks on 1-2, 1-3, 1-4 and 2-4. To transpose, when a block written 1, 3, 1, 3, is encountered simply write it 1, 2, 1, 2, and when a block written 2, 4, 2, 4, appears, change that to 3, 4, 3, 4.

By doing this one avoids re-tying the treadles of the loom or the even more troublesome effort to reach one's feet to find the tabby treadles in an unfamiliar place.

The drafts for the more elaborate weaves—summer and winter weave, double weave, double-face twill and damask weaves—as given in this block are modified graphic drafts. The form of graphic draft used for overshot weaving, with each warp-thread indicated by a separate black square on the draft, is confusing and cumbersome for these weaves, and the short form of draft, in which each black square represents four warp-threads, is far easier to thread from than the expanded draft. The same draft may be used for all these weaves, though the four threads of each unit are differently arranged for the summer and winter weave and for the other three.

For summer and winter weaving the two front harnesses,—or the two back harnesses, if for some reason the weaver prefers it so,—carry half the warp-threads, no matter how many harnesses there are for the pattern. These two harnesses operate the tie-threads by which the pattern weft is closely

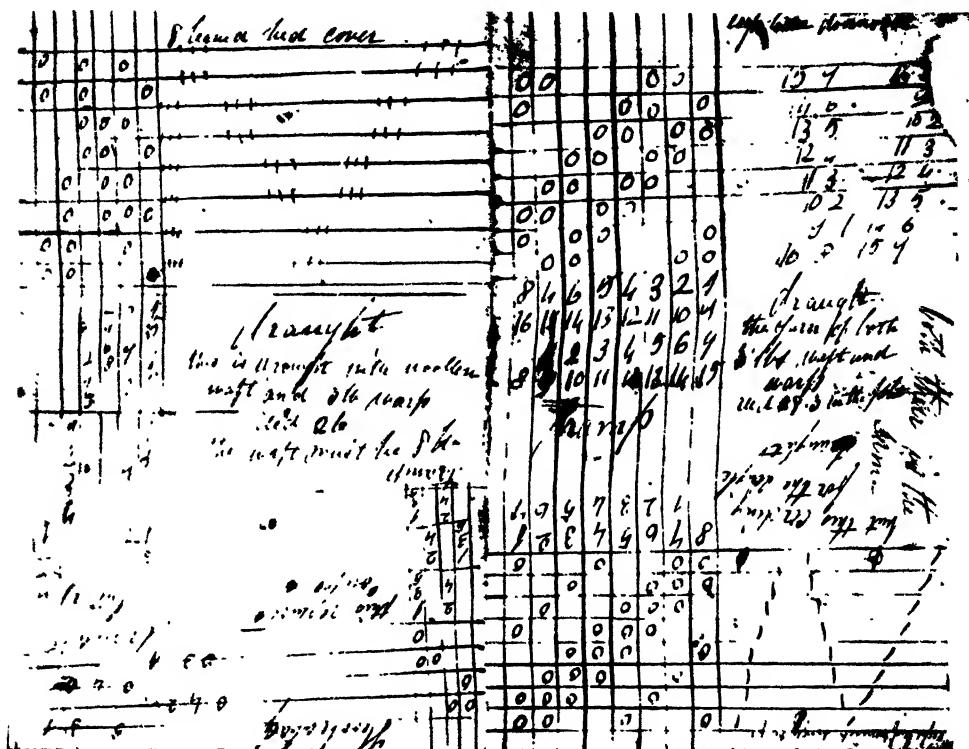
ties into the fabric. In addition to these two harnesses a separate harness is required for each block of the pattern. It follows therefore that on four harnesses simple two-block patterns may be woven in this weave and that four-block patterns require six harnesses, six-block patterns, like the handsome "Snow-Ball" from the Boston Museum, require eight harnesses and so on.



(58) An old letter from one weaver to another. Front page.

Each unit of the pattern, represented by a black square on the draft, consists of four threads, one on each of the tie harnesses and two threads on the pattern harness. The pattern harness is indicated by the row of the draft in which the black square occurs. See diagram 5, above. The pattern threads of block 1 are threaded on the third harness, and so on. The order of threading a unit of block 1 is as follows: 1, 3, 2, 3; and of block 2:

1, 4, 2, 4. The first thread of each unit, as will be noted, is threaded through harness No. 1, the third thread through harness No. 2 and the second and fourth threads through the pattern harness, as indicated by the draft. An expanded draft for summer and winter weaving is shown at (g) of the diagram. Only the first five blocks of the pattern are shown.



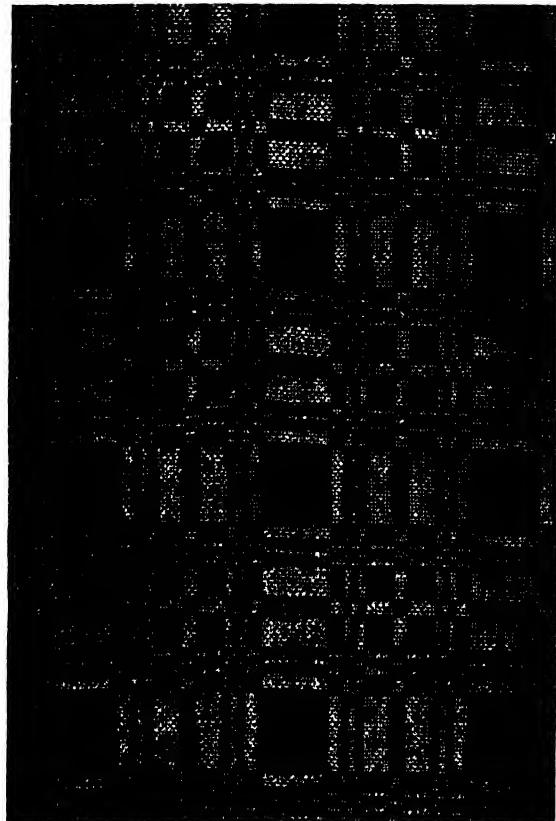
Back page of the same letter.

For the double weave and for double-face twill and damask each unit of the weave is threaded as for twill, and each block of the pattern requires four harnesses. The finer damasks are made with five harnesses for each block of the pattern. At (h) of the diagram is shown an expanded graphic draft of the first five blocks of the pattern as threaded for these weaves, sixteen harnesses being required as the pattern is one of four blocks. The

differences between the three weaves are a matter entirely of tie-up, the manner of drawing in being the same. The threads of each unit may be threaded: 1, 2, 3, 4, and 5, 6, 7, 8, etc., as shown on the diagram or 4, 3, 2, 1, and 8, 7, 6, 5 if preferred. The result is the same. Ancient drafts for this

weave were often written in dashes as shown at (i) of the diagram. Each dash stands for a unit of twill. By multiplying the number of dashes by four one may arrive at the number of threads in a repeat of the pattern.

Modern tie-up drafts are usually written in Xs rather than in Os. The difference is unimportant. The Xs indicate ties from treadle to harness that will bring down the harness indicated, just as in four-harness tie-ups. The arrangement of the treadles is as the weaver wills, the plan that looks most logical on paper not necessarily being the easiest in practice. Ancient tie-up drafts often show several treadles tied the same, due to the fact that treadles were arranged with care so that the weaver could tread off the



(59) A two-block pattern in summer and winter weave on four harnesses. Similar to pattern for draft number 155, but simpler.

pattern alternately with the right and the left foot, an extra treadle or two being sometimes required to produce a regular sequence. This can be done for all small weaves but is out of the question for pattern work, where a sequence of treadling sometimes covers several hundred shots to complete the repeat. For

work of this sort a logical arrangement of treadles is best, with the tabby treadles tied wherever the weaver finds them most convenient.

The tie-up for the more elaborate weaves will be considered in detail in a later chapter.

CHAPTER THIRTEEN

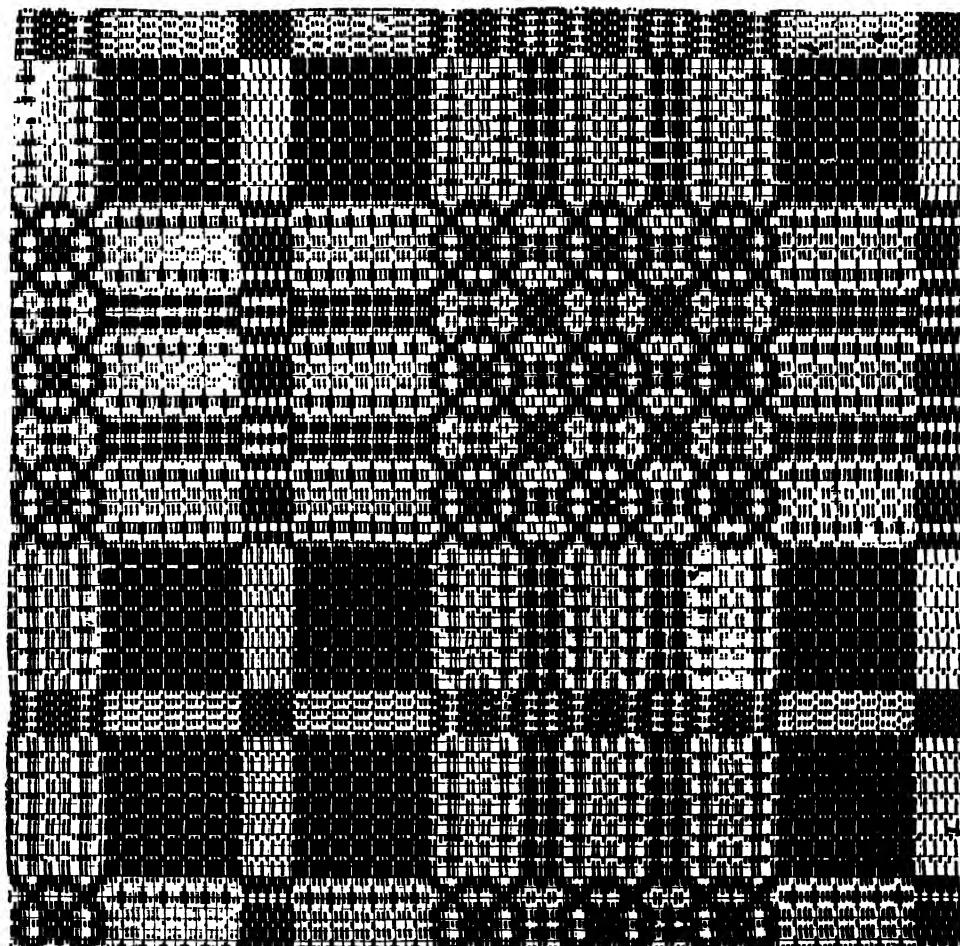
NOTES ON THE OVERSHOT DRAFTS

THERE appears to be no limit to the possible number of patterns—even for the simple overshot weave confined to its four blocks. The following collection of drafts makes no claim to completeness. It is no more than a selection of representative patterns. All the most famous of the old patterns—those woven many times and widely known—have been included, however. Sometimes many drafts of the same pattern have been compared in order to select the most pleasing and the most characteristic form. With these are many patterns that appear to have been known only in certain limited localities, and others that have survived only in the form of a single example.

The matter of names has proved extremely puzzling, because of the fact that the same pattern is sometimes known under many names, and also of the fact that a name was often used in different places for patterns not in the least similar. The names as given here are a compilation in which many weavers have coöperated, and are as nearly correct as it seems possible to be in the matter.

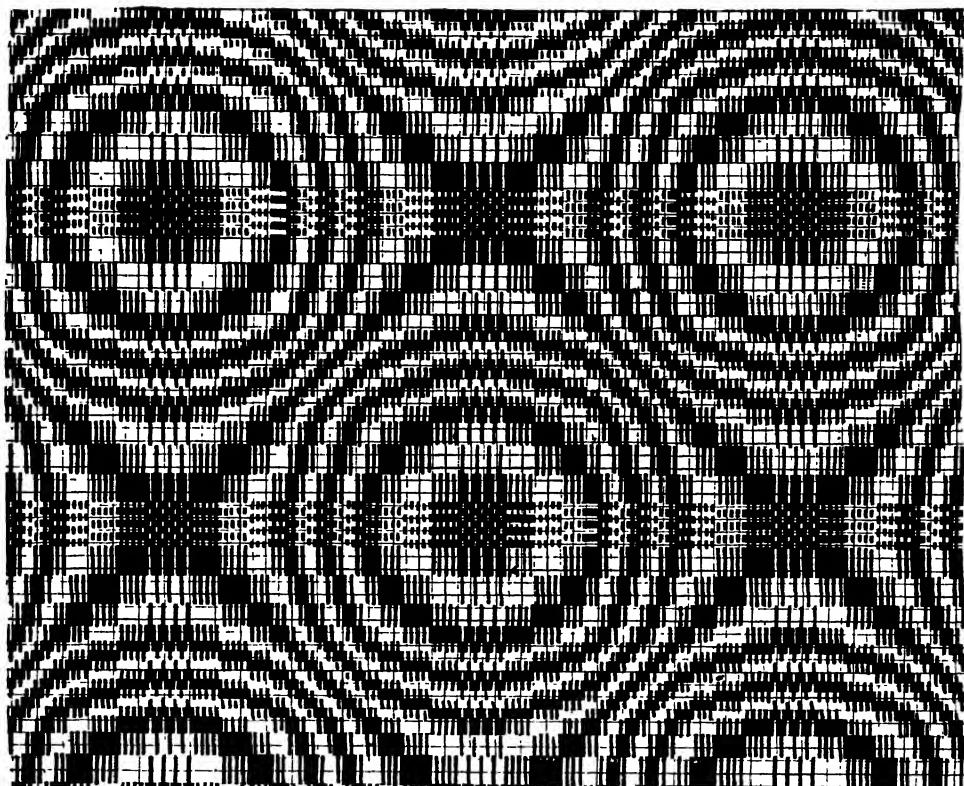
With two exceptions all the patterns of the following diagrams are "Old American." These two—"Monk's Belt" and "Honeysuckle"—have been included because they are so much used by modern American hand-weavers that it would appear foolish to omit them. "Monk's Belt" is distinctly a modern importation from Europe, and its introduction is no doubt due to the Scandinavian influence in modern American weaving. At the time when the old art was first revived no American teachers were available, most of the surviving weavers being illiterate mountain women or simple "ancients" without much ability for teaching. Weaver Rose was one of the few exceptions. When the demand for teachers became acute, what was more natural

than to get them from Sweden, where hand-weaving was well known and widely practiced. So-called "embroidery weaving" and several other forms of the art sometimes seen in America are of Scandinavian origin. "Monk's Belt" is a very handsome pattern, but if one is interested in historical correctness it should not be used with typical colonial furnishings. Our art shows similar patterns, such as "Everlasting Beauty," but the effect of these is different.



(60) Irish Chain. Draft number 89.

"Honeysuckle" came, who knows whence? It is a charming little pattern and resembles the flowery figure of "Pine Bloom," from which it was doubtless derived. Who began using it as a pattern by itself, separated from the characteristic "tables" of the old pattern,—and who named it,—no one seems to know, though the thing is so recent. There appear to be no ancient pieces



(61) Wheel of Fortune. Draft number 100.

in this pattern, but it has become so common of late that it is as hackneyed as a too-popular song. Unlike Monk's Belt it is distinctly in the American manner and goes well with colonial detail.

An attempt has been made in this book to classify the patterns so that anyone wishing to find the threading and the name of some particular pattern

—of an ancient coverlet perhaps or a treasured heirloom—may at least have an idea in what part of the list to look for it. The classification has been made according to “weave”—that is, structure of the fabric—and also according to geometric similarity of the figures, after a plan somewhat like the classification of plants into families and genera.

Some patterns partake of the characteristics of more than one group, and might with propriety be classified otherwise than as has been done. The forms merge and blend and it is impossible to make entirely definite separation between groups. Our classification, however, is not a matter of exact science but is intended simply as a convenience to users of the drafts. The rule followed has been to classify a doubtful pattern with the group in which it is supposed a searcher would be most likely to look for it.

All treadlings given below are written for the six-treadle tie-up as shown at the bottom of Diagram 1. For use on table looms or looms with a different tie-up they must be suitably transposed.

DIAGRAM 6 (62)

Patterns 1 and 2 are similar except that 1 has a block in the center of the diamond while 2 has not. These threadings are often used as borders.

Pattern 3 is on opposites and should be treadled as follows:

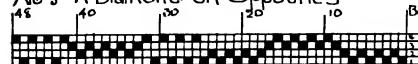
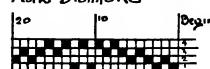
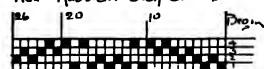
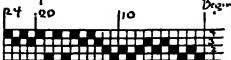
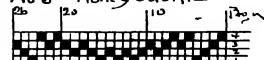
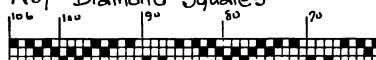
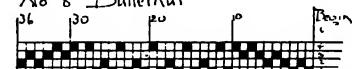
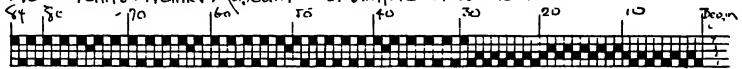
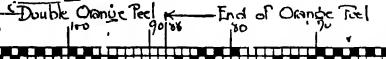
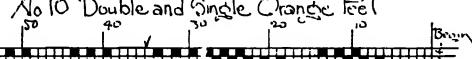
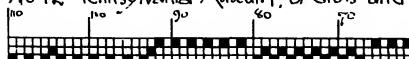
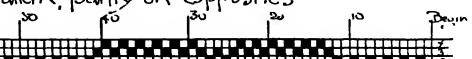
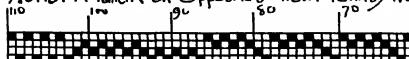
Treadle 1,	6 times
3,	6 times
2,	6 times
4,	6 times

No. 4 is partly on opposites and should be treadled as follows:

Treadle 1,	4 times
2,	4 times
1,	4 times
3,	4 times
4,	4 times
3,	4 times

No. 5 is a diamond figure on opposites and should be treadled as drawn in with the small accidental blocks omitted.

No. 6 is the “Honeysuckle” pattern very widely used among modern weavers though apparently unknown in colonial days. It may be woven in

Patterns for Overshot Weaving**Series I. Diamond and Cross Family****Group (a) Simple Figures****No. 5 A. Diamond on Opposites****No. 2 Diamond****No. 1 Russian Diaper****No. 4 Diamond on Opposites****No. 4****No. 3 Turkey Foot****No. 5 Diamond Squares****No. 6 Honeysuckle****No. 6 Honeysuckle****No. 7 Diamond Squares****Group (b)
Cross and Table Patterns****No. 8 Butternut****No. 9 Pennsylvania Museum — a Simple Cross and Table****No. 10 Double and Single Orange Peel****No. 10 Double and Single Orange Peel****No. 11 The Cross of Tennessee****No. 11 The Cross of Tennessee****No. 12 Pennsylvania Museum, a Cross and Table Pattern, parity on Opposites****No. 12 Pennsylvania Museum, a Cross and Table Pattern, parity on Opposites****No. 13. A Pattern on Opposites from Pennsylvania's****No. 13. A Pattern on Opposites from Pennsylvania's**

Tie-Up
all Patterns
Tatten Tabby

Diagram 6 (62)

a great many different ways and is useful for all small work. Illustrated. No. 7 is a valuable small pattern, especially good for upholstery. It should be treadled "as drawn in."

No. 8 is an excellent pattern for small work.

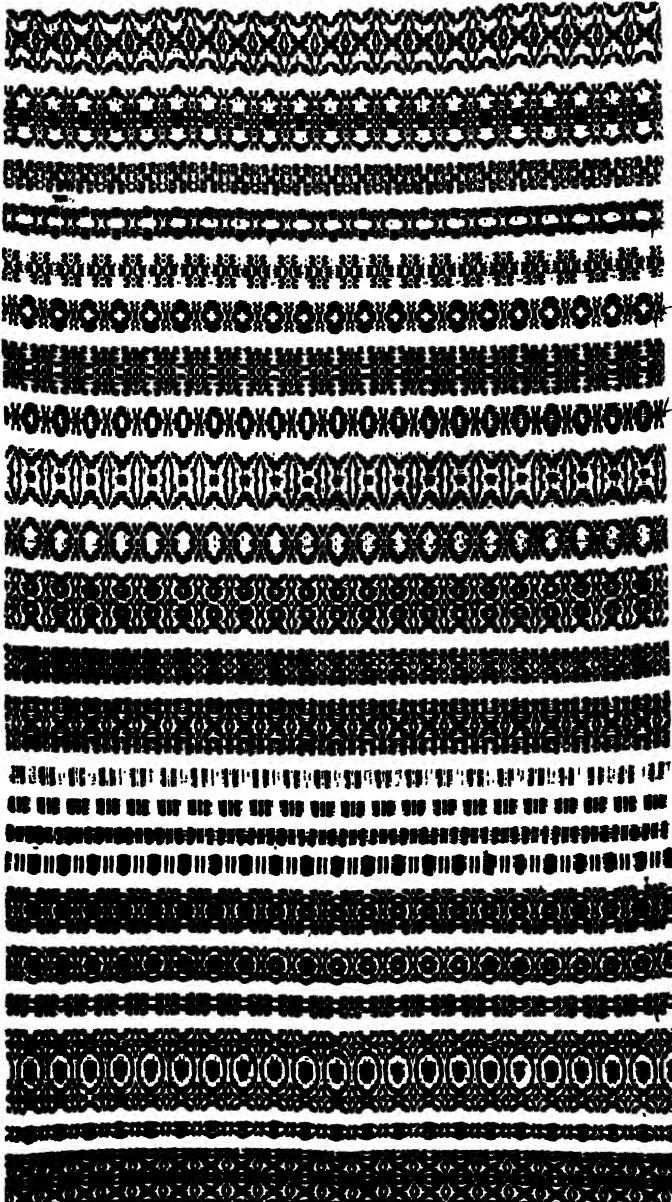
No. 9 is a larger pattern similar to No. 8. Both of these are woven as drawn in.

No. 10 is a plain pattern used a good deal for coverlets. Illustrated.

No. 11 is shown at 5, Illustration (55).

No. 12 is an interesting pattern partly woven on opposites. It should be woven as drawn in with the small accidental blocks omitted.

No. 13 is illustrated (54).



(63) Student's sampler showing a few of the many variations of the Honeysuckle pattern. Draft number 6.

DIAGRAM 7 (65)

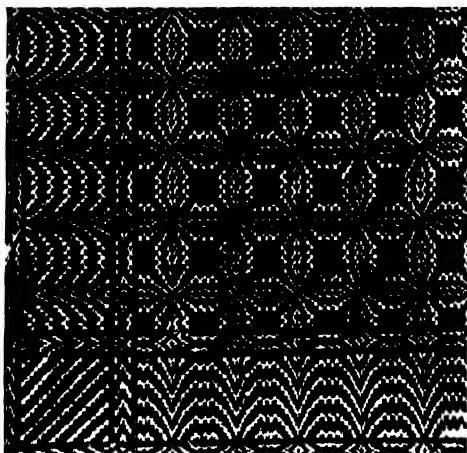
No. 14 and No. 16 are both patterns from the collection of Weaver Rose. They are simple, rather plain patterns, but effective.

No. 17 and No. 18 are also plain patterns and suitable for couch covers or the coverlet for a man's room, rather than for more frivolous purposes.

No. 19 is similar to the patch patterns and though simple is very decorative. Illustrated (35).

No. 20 is a very plain pattern indeed, but many handsome old coverlets were woven on this treadling.

All these patterns are woven as drawn in.



(64) Orange-Peel. Draft number 10.

It appears in a great variety of slight variations woven in many different colors and different arrangements. The name in New England was "Isle of Patmos." The other names were used in different parts of the South. The pattern is illustrated. In weaving, the small two-thread accidentals should be omitted. The squares of the table and the blocks in the center of the Star figure are on opposites.

No. 27 is a pattern in some ways similar to "Pine Bloom," differing chiefly in the Star figure. It is a much heavier and more serious-looking pattern.

DIAGRAM 8 (65)

Nos. 21, 22, 23 and 24 are similar patterns.

No. 22 is illustrated.

They are larger patterns and suitable for coverlets or hangings.

No. 25 is a pattern on opposites.

All these patterns are woven as drawn in, No. 25 being woven with the small 2-block accidental blocks omitted in the treadling:

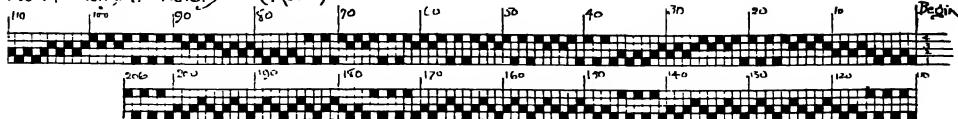
DIAGRAM 9 (69)

No. 26 is one of the most fa-

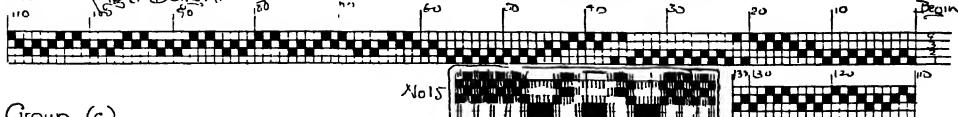
mous and most admired of the ancient patterns. Especially in the South it appears in a great variety of slight variations woven in many different colors and different arrangements. The name in New England was "Isle of Patmos." The other names were used in different parts of the South. The pattern is illustrated. In weaving, the small two-thread accidentals should be omitted. The squares of the table and the blocks in the center of the Star figure are on opposites.

Series I Group (b)

No 14 Ferry's Victory (Rose)



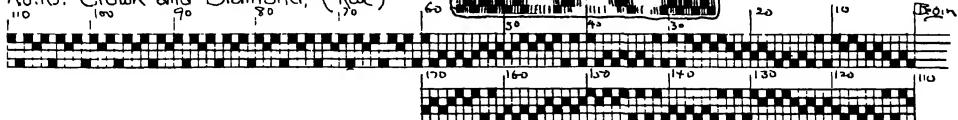
No 15 King's Delight



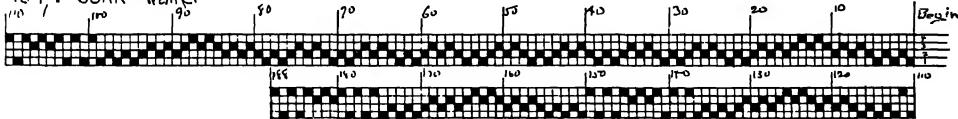
Group (c)

Diamond and Table Patterns

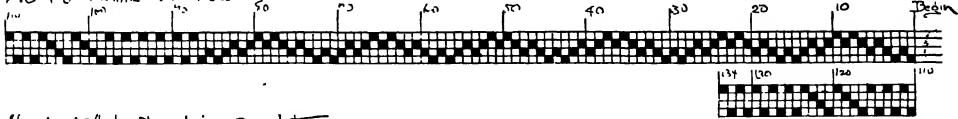
No. 16. Crown and Diamond, (Rose)



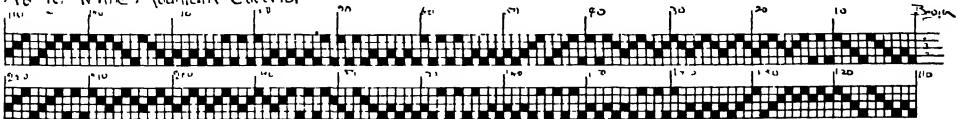
to Mr. John Walker



1.018 Name Trevor



No 10 White Mountain Coverlet



No 20 Lily of the Valley, also Rose in the Wilderness and Bonaparte's Birch

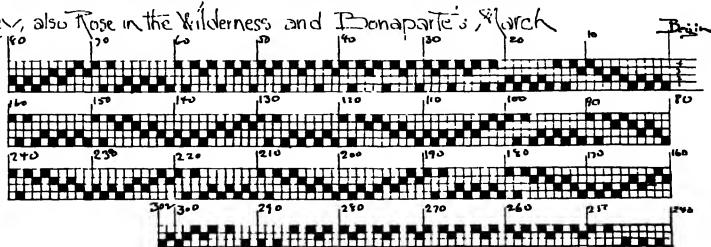
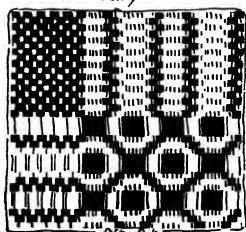
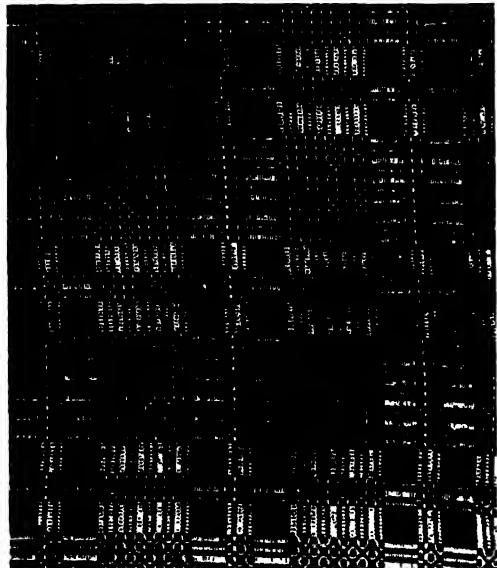


Diagram 7 (65)

No. 28 is illustrated opposite page 20 of Eliza Calvert Hall's "Book of Handwoven Coverlets."

No. 29 owes its interesting character to the fact that it is written largely on opposites. In weaving, the small accidentals should be omitted.

All these patterns are woven as drawn in.



(66) Bonaparte's March.
Draft number 20.

used alone. It is included here for the sake of continuity. Draft No. 108 gives this figure in combination with a "Sunrise" figure and an elaborate border. As illustrated at 37 the figure is treadled rose-fashion as follows:

First figure

Treadle 2, 5 times
1, 6 times
2, 6 times
1, 6 times
2, 5 times

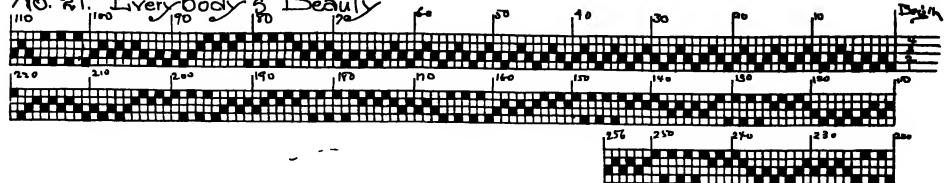
Second figure

Treadle 3, 5 times
4, 6 times
3, 6 times
4, 6 times
3, 5 times

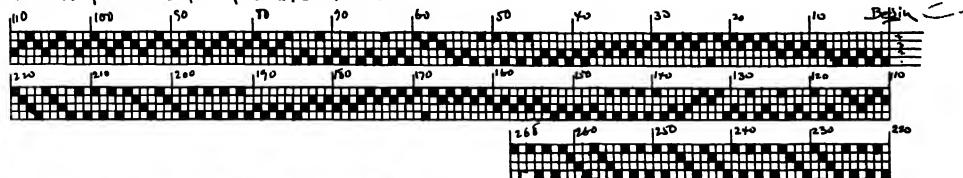
No. 38 and No. 39 are similar patterns, one somewhat plainer than the other. They are patterns of southern origin rarely if ever found in the North.

Series I., Group (c)

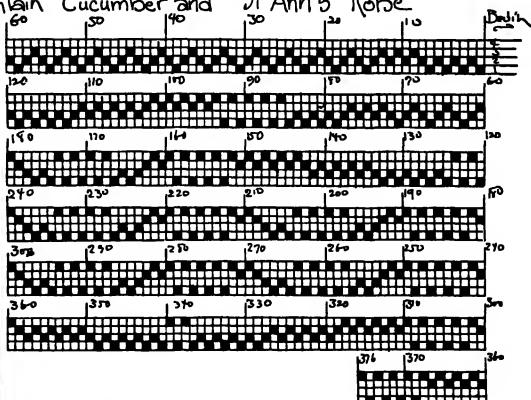
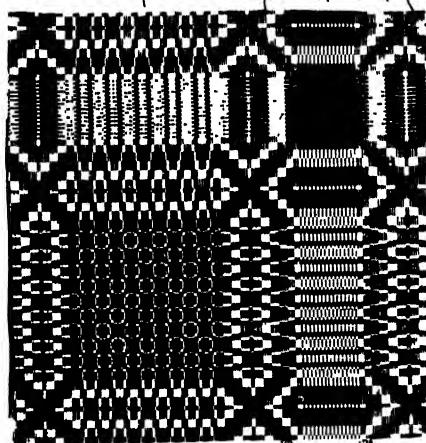
No. 21. Everybody's Beauty



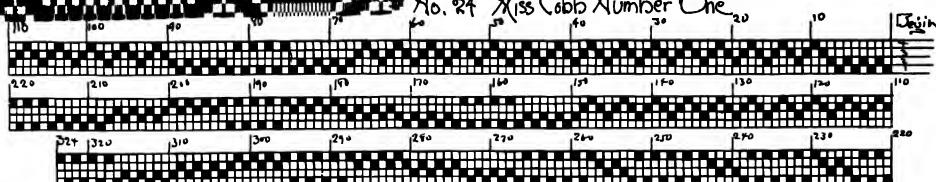
No. 22. Rose of Sharon, or Indian War



No. 23 Governor's Garden, also Mountain Cucumber and St. Ann's Rose



No. 24 Miss Cobb Number One



No. 25 The Clifton Springs Coverlet

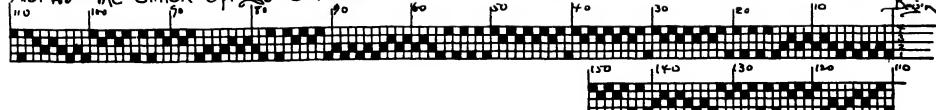
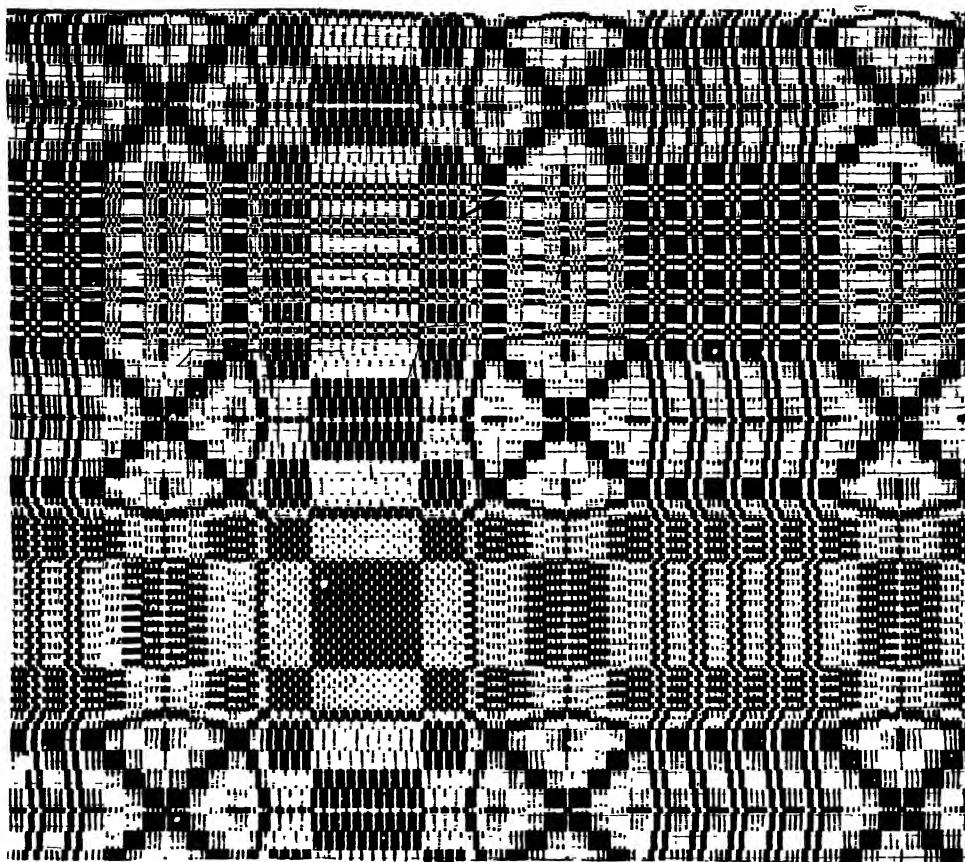


Diagram 8 (67)

They should be treadled as drawn in. The illustration opposite page 46 of Eliza Calvert Hall's book shows a similar pattern.



(68) Indian War. A pattern partly on opposites. See draft number 22.

DIAGRAM 11 (73)

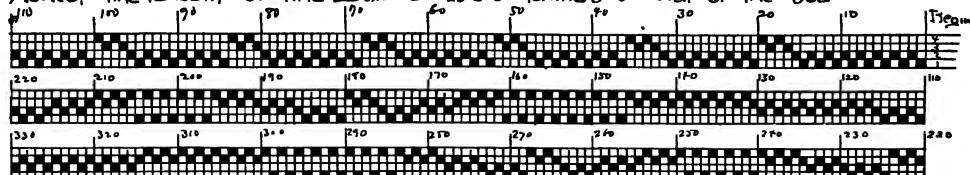
Patterns Nos. 40 and 41 are combinations of figures similar to Nos. 8 and 39. They should be woven as drawn in.

No. 42 is a very beautiful and much used ancient pattern. It should be treadled as drawn in, but may also be woven rose-fashion with pleasing results.

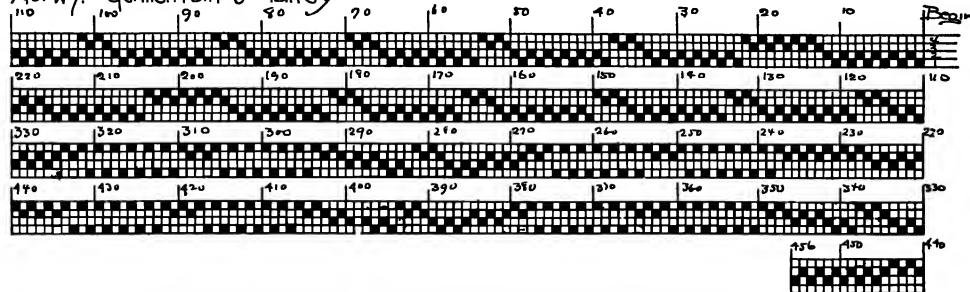
No. 43 is a plain pattern, interesting chiefly for its age and historic associations. Woven as drawn in.

Series I, Group (c)

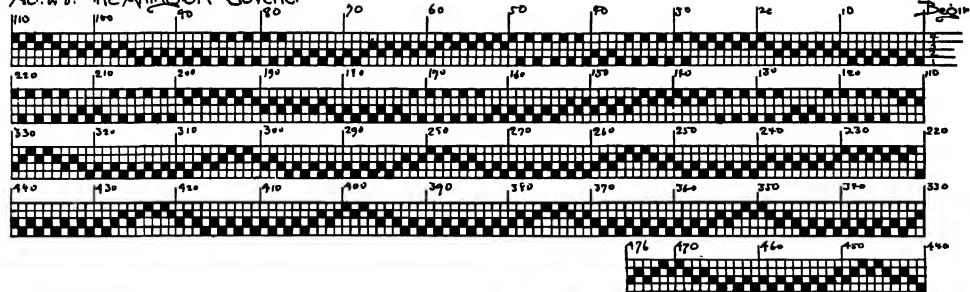
No. 26. Fine Bloom or Pine Durr or Isle of Patmos or Star of the Sea



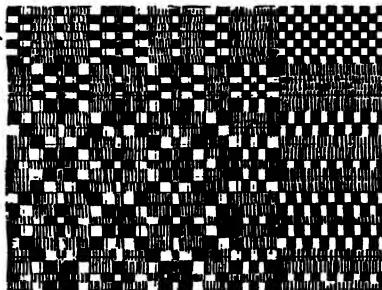
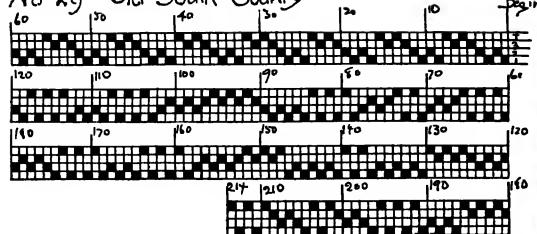
No. 27. Gentleman's Fancy



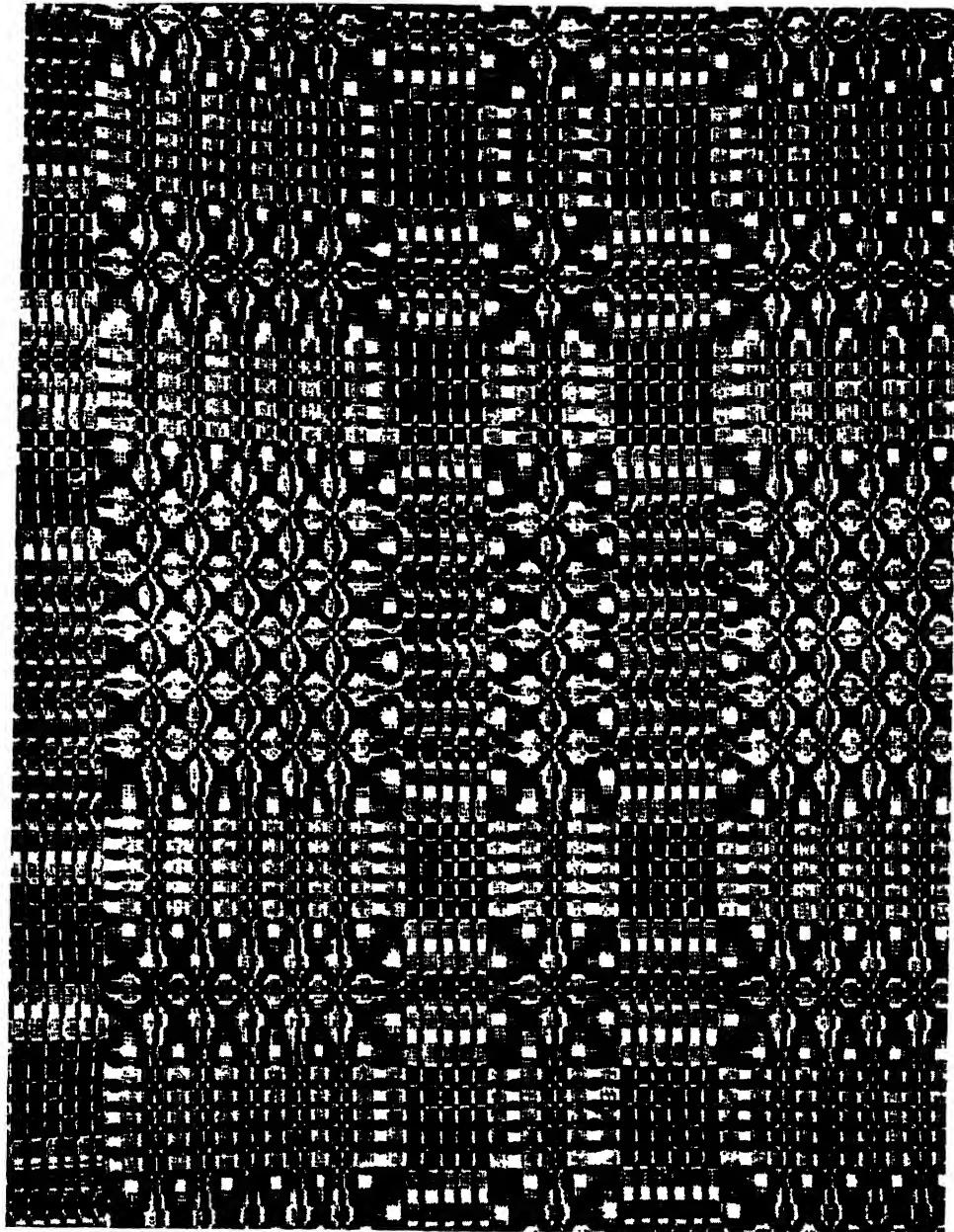
No. 28. The Arlington Coverlet



No. 29. Old South County

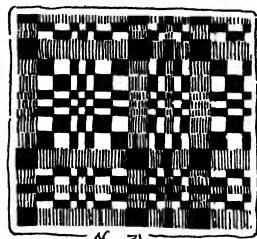


May M. Atwater



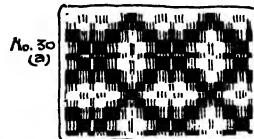
(70) Pine Bloom. See draft number 26.

Series II., Star and Rose Patterns



No. 31

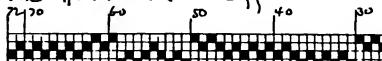
Group (a) Simple Figures

No. 30
(a)

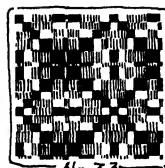
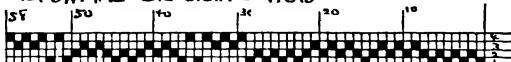
No. 30 Sweet-Briar Beauty



No. 31, A Pattern or Opposites

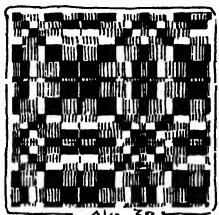
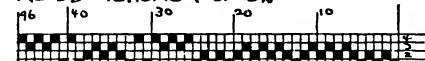
No. 30
(b)

No. 32. The Cleveland Web

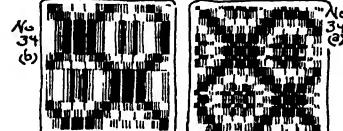


No. 33

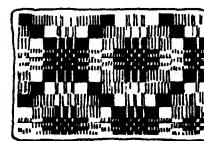
No. 33 Variation of 32



No. 32

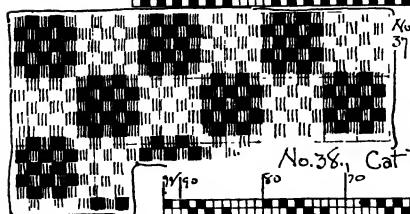
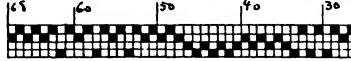
No. 34
(b)

No. 34 Solomon's Delight



No. 35

No. 35 Solomon's Seal



No. 37. Dog Tracks



No. 38. Cat Tracks or Snail Trail, or Snow-Trail



No. 39 Rattlesnake or Winding Vine

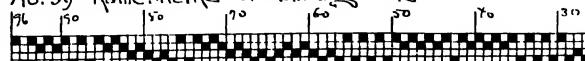
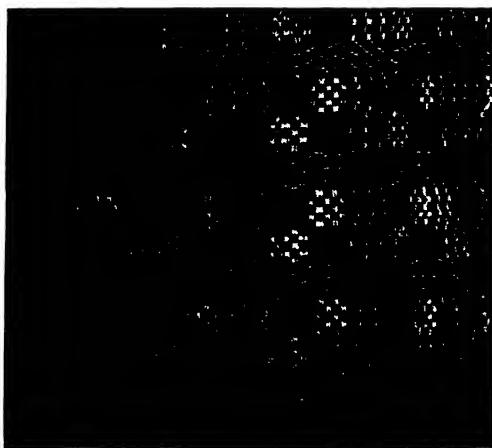


Diagram 10 (71)

No. 44 is a handsome pattern, written partly on opposites. Should be treadled as drawn in with the accidentals omitted.

No. 45 is a simple but effective pattern on opposites. Why it should be called "Seven Stars," it is difficult to say, as the number of stars appears to be thirteen.



(72) Snail Trail. Draft number 38.

No. 49 is an interesting little three-block pattern partly on opposites. In weaving omit treadle 4 entirely. Otherwise woven as drawn in.

No. 50 is a plain, serious-minded pattern.

No. 51 is a large and fanciful pattern,—illogical but charming. It consists of two small tables, an odd diamond figure and a figure of stars, partly on opposites. Should be treadled as drawn in with accidentals omitted.

No. 52 is a simple little pattern, partly on opposites, and may be treadled as drawn in, accidentals omitted, or rose-fashion as follows:

Treadle 3, 9 times
4, 9 times
2, 9 times
4, 9 times
2, 9 times
4, 9 times

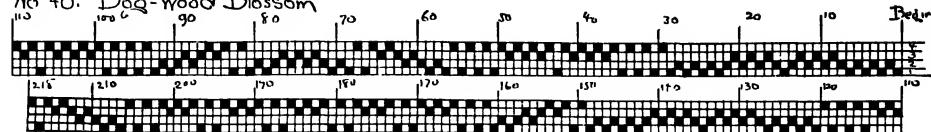
Treadle 3, 9 times
1, 9 times
2, 2 times
1, 4 times } 4 times
2, 2 times
1, 9 times

DIAGRAM 13 (75)

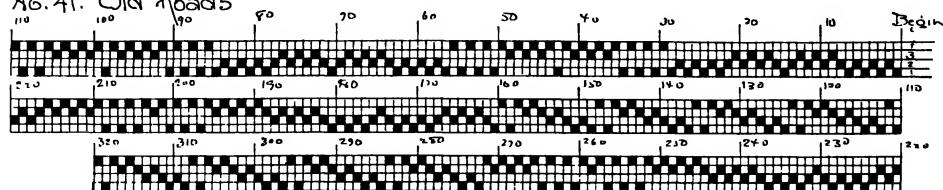
No. 53 is a very famous old pattern—one of the finest.

Series II. Group (a)

No. 40. Dog-Wood Blossom

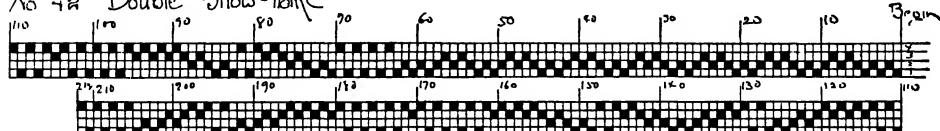


No. 41. Old Roads

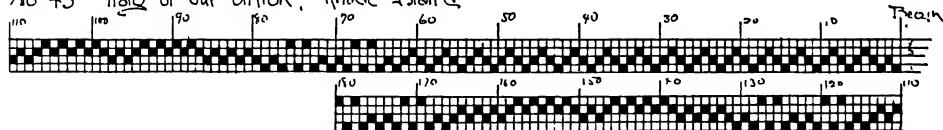


Group (b), Star and Table Tatters

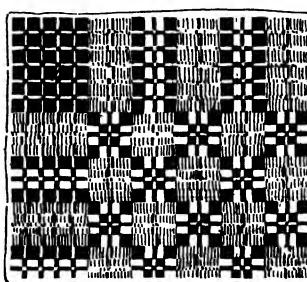
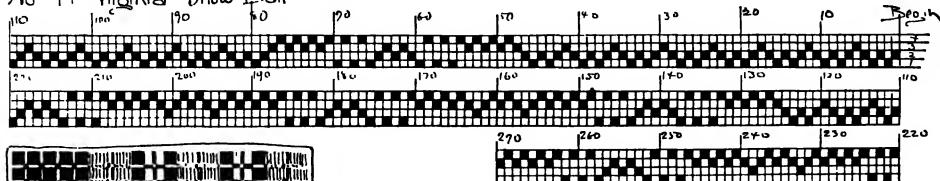
No. 42 Double Snow Flake



No. 43 Flag of our Union, Rhode Island



No. 44 Virginia Snow-Ball



No. 45 Seven Stars

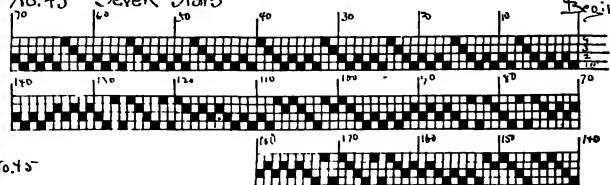
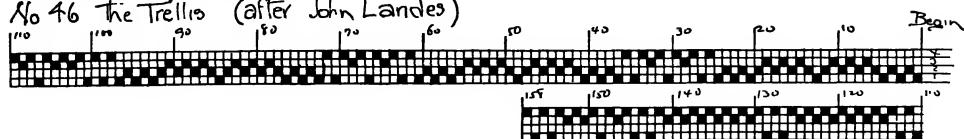


Diagram 11 (73)

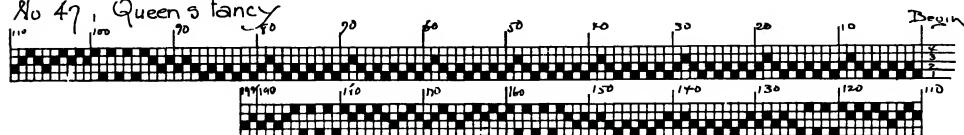
M. M. Atwater

Series II Group (b)

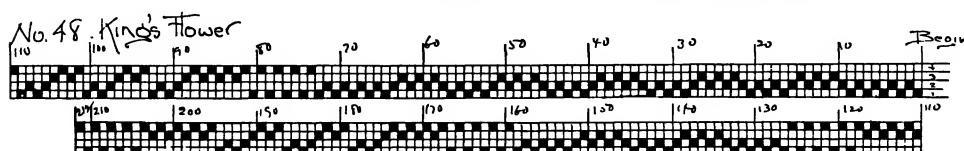
No. 46 The Trellis (after John Landes)



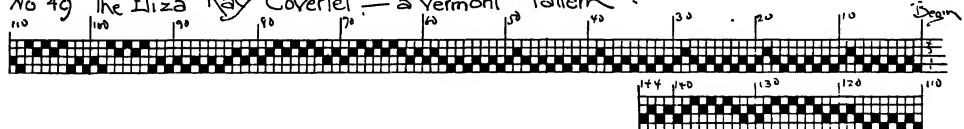
No. 47 Queen's Fancy



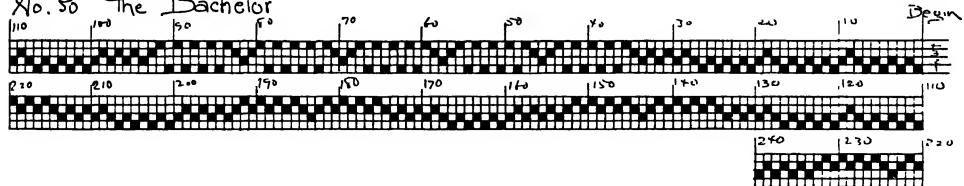
No. 48 King's Flower



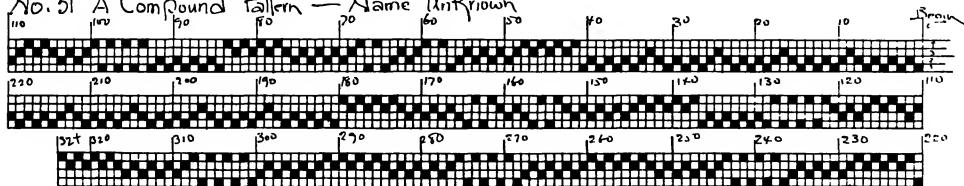
No. 49 The Eliza Ray Coverlet — a Vermont Pattern



No. 50 The Bachelor



No. 51 A Compound Pattern — Name Unknown



No. 52 A Minnesota Pattern

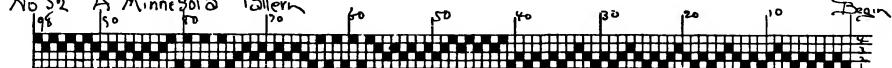


Diagram 12 (74)

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No. 54 is similar but has a "window sash" figure instead of a single small table. The first 308 threads of the draft are the repeat from "Missouri Trouble." The entire 408 threads are the repeat of "Tennessee Trouble." Both patterns are woven as drawn in. Illustrated (5).

No. 55—the very handsome old coverlet from which this draft was made was woven in 1820 at Grystone, Albion, New York, by Matilda Kimball Bacon. It is an unusually fine example of the pattern usually known as "Federal Knot."

No. 56 is illustrated (53). It is a very simple and logical pattern.

Nos. 57, 58. "Scarlet Balls" and "Forty-nine Snowballs." The first 182 threads of the draft constitute the repeat of the pattern known as "Scarlet Balls" and sometimes as "Nine Snowballs." It is a very simple pattern, but charming. This is not woven as drawn in, but is treadled as follows:

Treadle 2, 2 times	{ Repeat 1, 5 times
1, 2 times	13 times { 2, 4 times
2, 2 times	1, 5 times
Rose { 3, 7 times	Repeat Rose, repeat Star, repeat Rose.
4, 7 times	Repeat from beginning.
3, 4 times	
4, 7 times	
3, 7 times	

No. 58 treadle table as above. Then Rose, Star, Rose, Star, Rose, Star, Rose, Star, Rose, Star, Rose, Star, Rose, Table. Then:

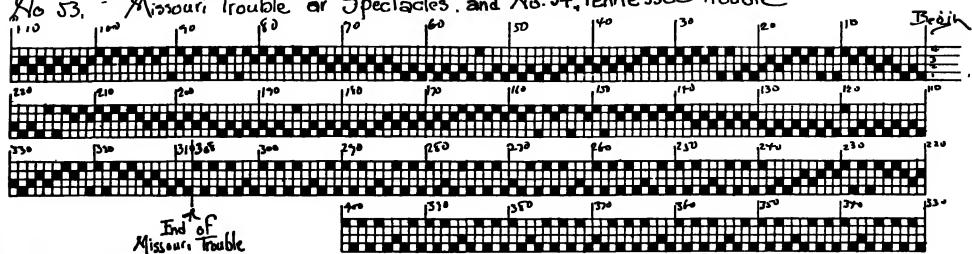
Treadle 4, 8 times
1, 7 times
2, 8 times
1, 7 times
4, 8 times. Repeat from the beginning.

No. 59 is an attractive small figure with a table on opposites and a three-block rose-shaped figure. Treadle as follows:

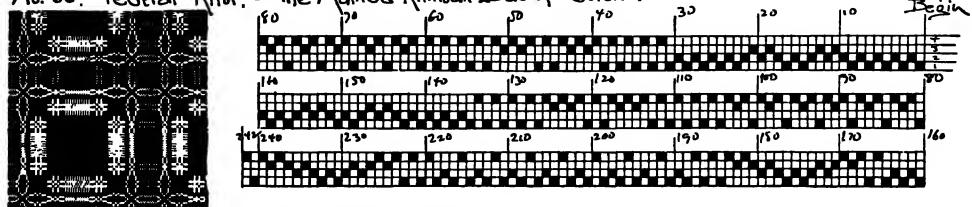
Rose—treadle 3, 7 times	Rose—treadle 3, 1 time
2, 7 times	2, 1 time
1, 7 times	1, 7 times
2, 1 time	2, 7 times
3, 1 time	3, 7 times
2, 1 time	Table—treadle 4, 8 times { four times
1, 1 time	2, 2 times } 4, 7 times
2, 1 time	

Series II, Group (b)

No. 53. - Missouri Trouble or Spectacles, and No. 54. Tennessee Trouble

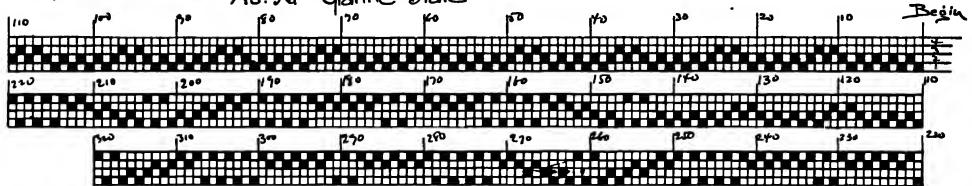
End of
Missouri Trouble

No. 55. Federal Knot. — the Matilda Kimball Bacon Coverlet



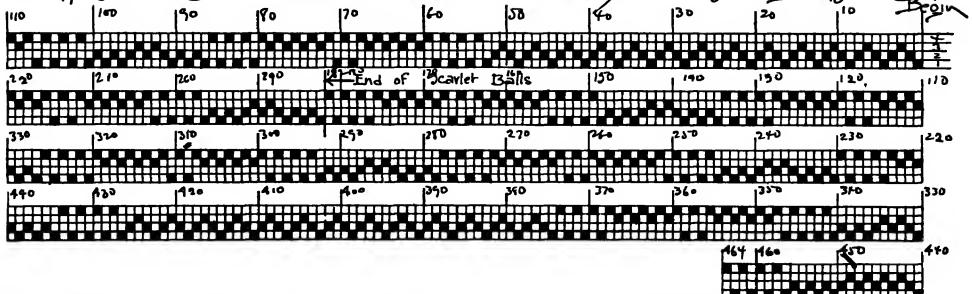
No. 55

No. 56. Granite State



Group (c) Rose with Table

No. 57. Scarlet Balls of Alabama, and No. 58. Forty-Nine Snow-Balls

End of
Scarlet Balls

No. 59. The Morning-Glory

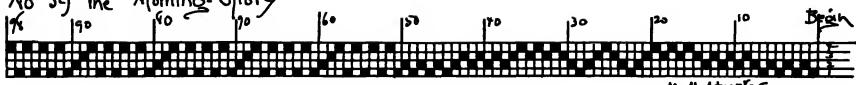


Diagram 13 (75)

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DIAGRAM 14 (76)

No. 60 is an honest and straightforward pattern with little if any nonsense about it. Woven as drawn in.

No. 61 is a charming old pattern and appears among ancient "draughts" under the name of "Queen's Delight." Modern weavers know it as "Mary Simmons"—probably because it appears under that name in Eliza Calvert Hall's coverlet book. It is woven as drawn in.

No. 62 is an unusual arrangement with a good deal of charm. One complete repeat and a little over will make a pillow top. Put on a narrow border if desired. Begin threading the pattern at thread 409 of the draft; thread to the end; then one complete repeat of the draft as written; then from the beginning to thread 73. Repeat border, if any. This is woven as drawn in.

No. 63 is a pattern of four large star-figures inclosed in a frame. It should be woven as drawn in.

No. 64 is the same pattern as 63 but is written on opposites and the effect is very different. This draft was taken from a handsome old coverlet in the collection of the Pennsylvania Museum. Woven as drawn in.

DIAGRAM 15 (77)

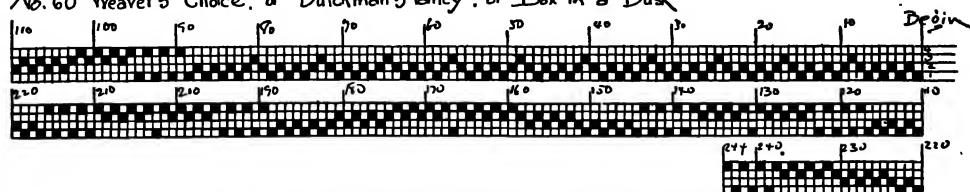
No. 65 is a small wheel pattern used alone for small work and in combination with tables for coverlets. It should be woven as drawn in.

No. 66 is a very odd little pattern partly on opposites. The wheel effect hardly appears except when seen from a distance. There is an old coverlet in the Pennsylvania Museum woven on this pattern. The draft given here, however, is from the letter—quoted elsewhere—written by Weaver Rose of Rhode Island to one of his associates a number of years ago. The pattern should be treadled as follows:

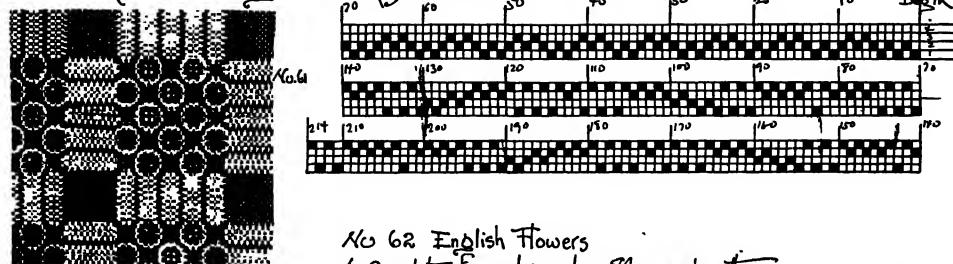
Treadle 1, 2 times	Treadle 4, 4 times
2, 3 times	3, 4 times
3, 5 times	4, 4 times
4, 6 times	2, 4 times
2, 4 times	1, 4 times
1, 4 times	2, 4 times
2, 4 times	4, 6 times
4, 4 times	3, 5 times
3, 4 times	2, 3 times

Series II. Group (d), Stars and Roses with a Table

No. 60 Weaver's Choice, or Dutchman's Fancy, or Box in a Bush

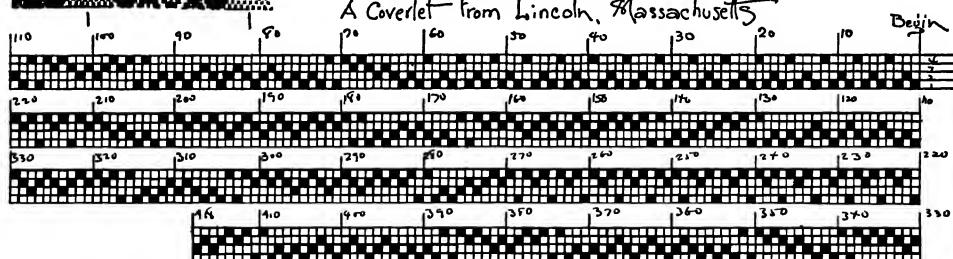


No. 61 Queen's Delight, or Mary Simmon's



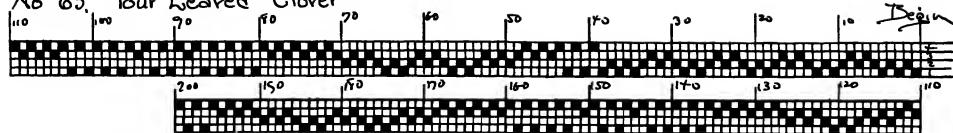
No. 62 English Flowers

A Coverlet from Lincoln, Massachusetts

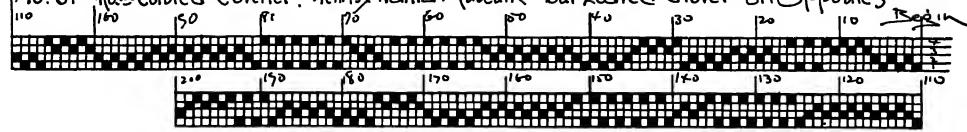


Group (e) Cluster of stars with a Diamond

No. 63. Four Leaved Clover



No. 64 Rose-colored Coverlet, Pennsylvania Museum Four Leaved Clover on Opposites



M. M. Atwater

Series III. Wheel Patterns

Group (a) Star and Wheel Patterns, with a Cross or Diamond

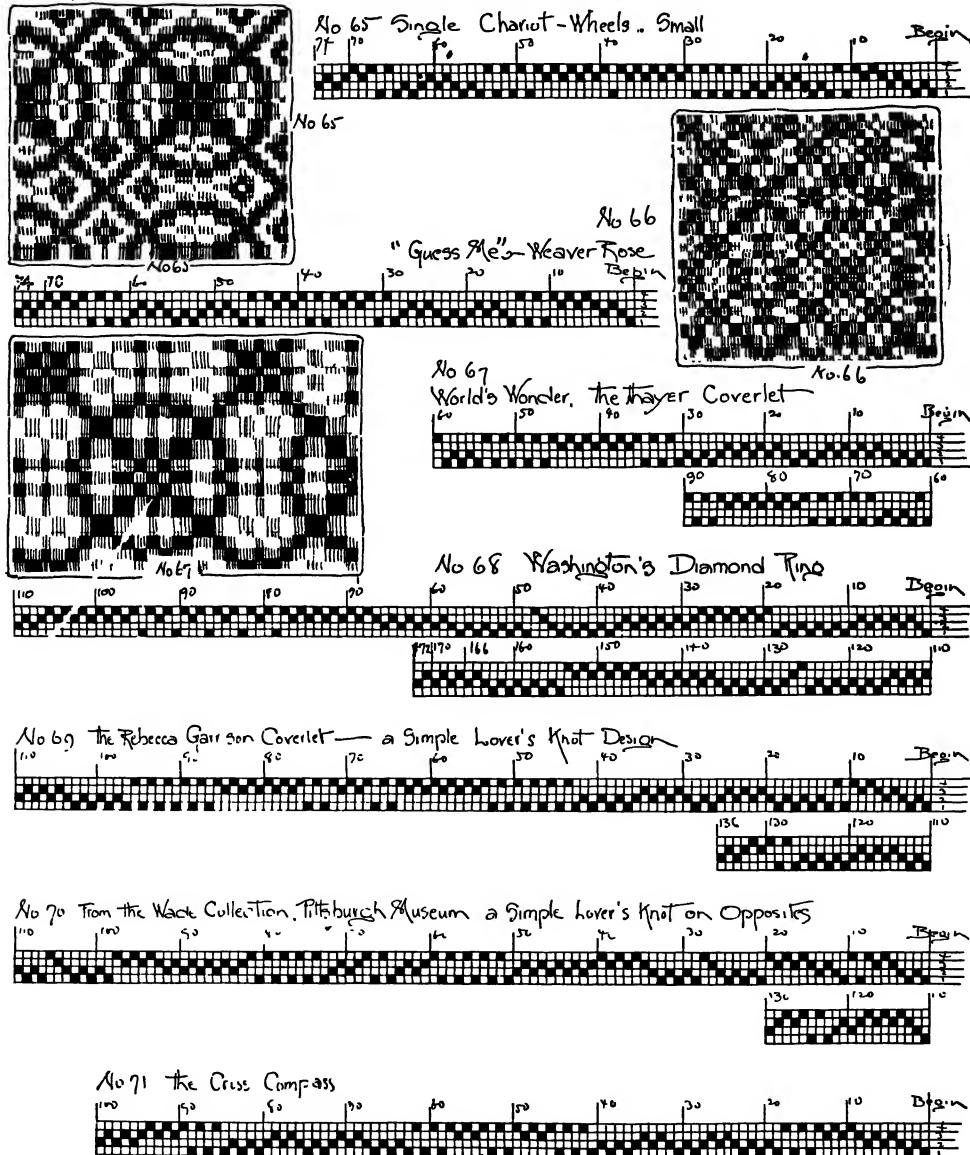
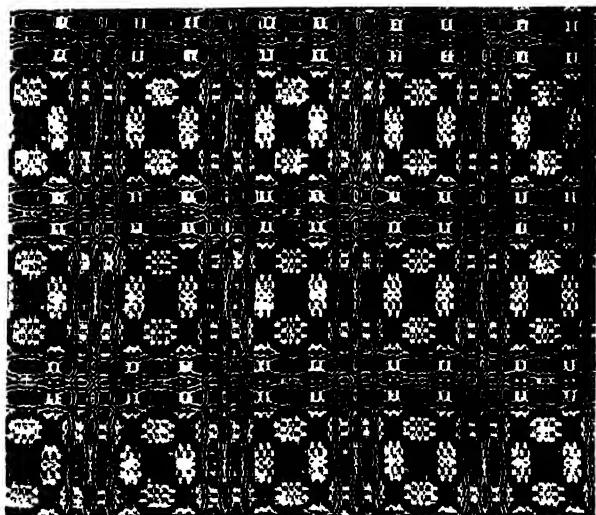


Diagram 15 (77)



(78) A Lover's Knot coverlet, from the Newark Museum.

106. As the treadling is somewhat obscure it is given below.

Treadle 1,	2 times
2,	8 times
1,	9 times
3,	9 times
2,	9 times
1,	9 times
3,	2 times
1,	9 times
2,	9 times
3,	11 times
4,	2 times
3,	2 times
4,	2 times
3,	2 times

Treadle 4,	2 times
3,	2 times
4,	2 times
3,	2 times
4,	2 times
3, 11	times
2,	9 times
1,	9 times
3,	2 times
1,	9 times
2,	9 times
3,	9 times
1,	9 times
2,	8 times

No. 69 should be woven as drawn in. Illustrated (29).

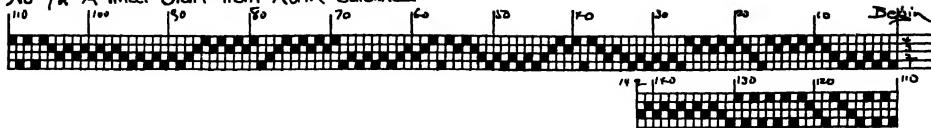
No. 70 is the same figure as No. 69—but what a difference in effect! As is true of all patterns on opposites, this is more subtle, more brilliant and at the same time less obvious than the pattern when drafted and woven in the usual way. A "Whig Rose" on opposites may be woven on the same

No. 67 is from a handsome old coverlet in blue and a brownish rose. The pattern, though extremely simple, is very effective when woven in two colors. For a coverlet it should be set off with a wide border. Woven as drawn in.

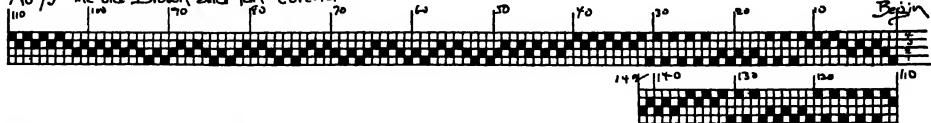
No. 68 is a very unusual and handsome arrangement of the Single Chariot-Wheel motif. An illustration will be found in Eliza Calvert Hall's "Book of Handwoven Coverlets," opposite page

Series III Group (a)

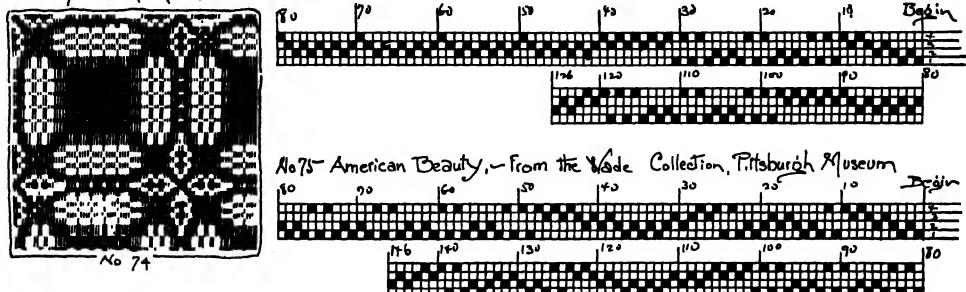
No 72 A Wheel Draft from North Carolina



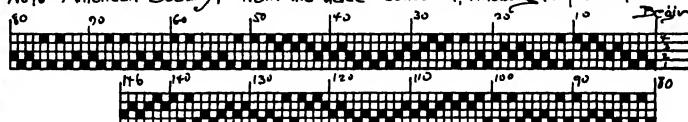
No 73 The old Brown and Tan Coverlet



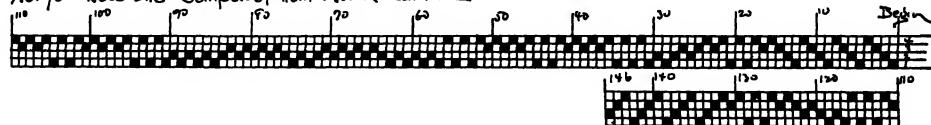
No. 74 Sun, Moon, and Stars.



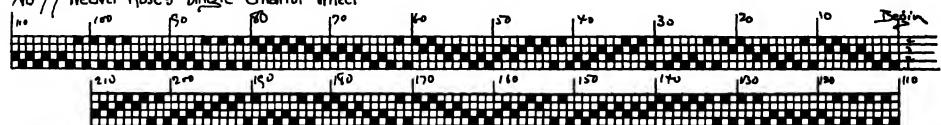
No 75 American Beauty, — from the Wade Collection, Pittsburgh Museum



No. 76 Lace and Compass, from North Carolina



No 77 Weaver Rose's Single Chariot-Wheel



No. 78 Wheel with Diamond Square, — from New Jersey

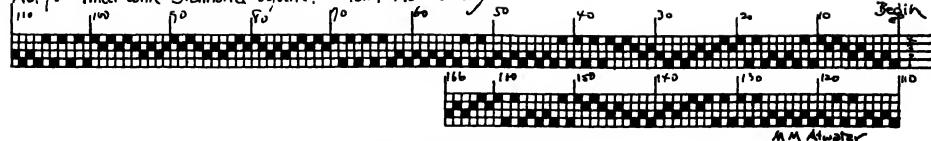


Diagram 16 (79)

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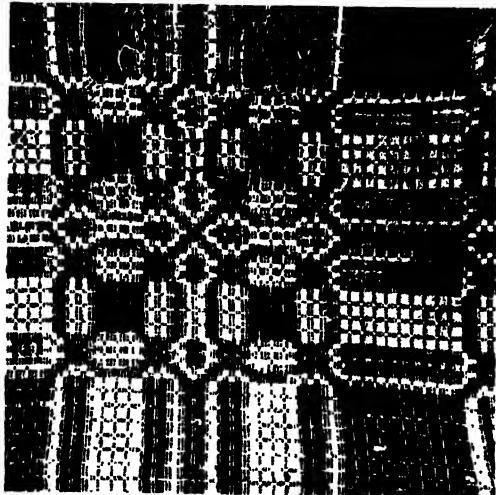
draft by treadling the pattern rose-fashion. The pattern is woven as drawn in with the small accidental blocks omitted. Illustrated, 2 (55).

No. 71 is woven as drawn in.

DIAGRAM 16 (79)

No. 72 is a pattern on opposites. Very handsome indeed.

No. 73 is an extremely simple pattern taken from an old coverlet woven in two shades of brown on a linen base. The effect is charming.



(80) Ancient weaving pattern similar to draft 74, repeated twice with large table.

Pattern No. 78 is illustrated (52).

All these patterns are woven as drawn in.

DIAGRAM 17 (81)

No. 79 is an agreeable, simple pattern. Illustrated (46).

No. 80 is a famous pattern of wide distribution. It appears in three distinct forms, varied by the arrangement of the "table" or plain square. The pattern with Table A is illustrated (44). Table B is in a small diamond figure giving a lacelike quality to the pattern. Table C is on opposites and gives a bold and striking effect. Illustrated, 7 (55).

No. 74 is one of the most famous of the old patterns appearing again and again in the old work in slightly modified forms. It is similar to "Lover's Knot."

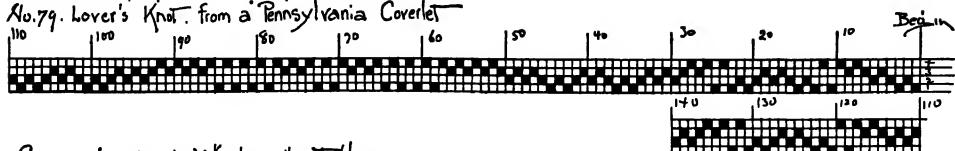
No. 75 is a pattern similar to No. 73, only more elaborate.

No. 76 is illustrated (25). This is a very interesting and unusual pattern.

No. 77 is one of the patterns written by the celebrated Weaver Rose.

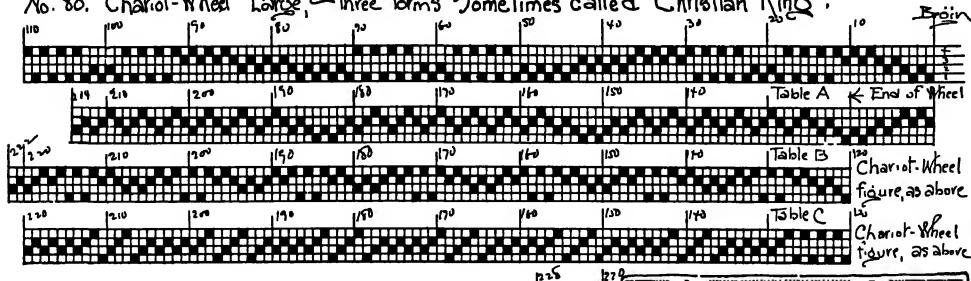
Series III Group (a)

No. 79. Lover's Knot from a Pennsylvania Coverlet

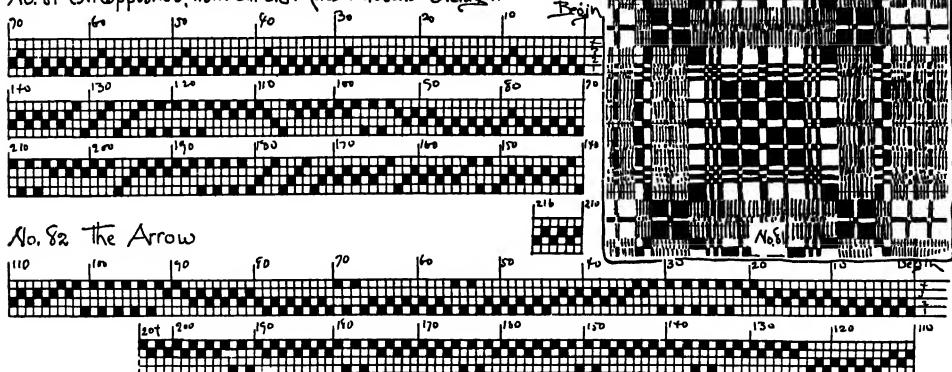


Group (b) Single Wheels with Table

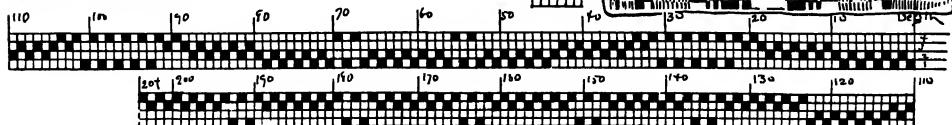
No. 80. Chariot-Wheel Lattice, — three forms sometimes called Christian Ring.



No. 81 On Opposites, from an old Massachusetts "Draught"



No. 82 The Arrow



No. 83. Lover's Knot with Window Sash. Rhode Island

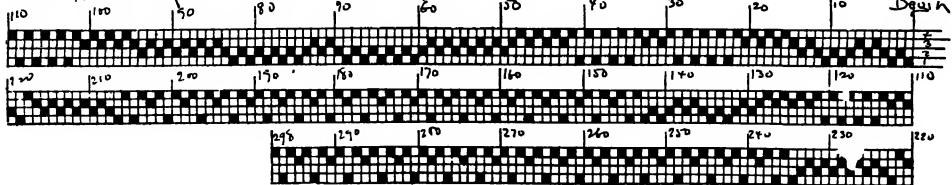


Diagram 17 (81)

M.M. Atwater

No. 81 is a wheel pattern, on opposites, very delightful. For a smaller figure with the same quality thread as follows: Begin with thread 31 of the draft and omit the 22 threads from 141 to 162, inclusive. This gives a repeat of 164 threads.

No. 82 is a simple wheel pattern, pleasing in effect. Why it is called "The Arrow" it is difficult to say.

No. 83 is a good large figure for coverlets or hangings.

All these patterns should be treadled as drawn in.

DIAGRAM 18 (82)

No. 84 is a very famous pattern. There are so many variations that it is hard to select the most characteristic forms.

No. 85 is a small simple pattern without very long overshot and is best for small work.

No. 86 is a very unusual "Chariot-Wheel," partly on opposites.

No. 87 is a pattern entirely on opposites, the effect being very different from the effect of No. 86.

No. 88 is a large and quite elaborate pattern.

These patterns are all woven as drawn in.

DIAGRAM 19 (83)

No. 89 is a pattern composed of nine small wheels and a "window-sash" figure. The 140 threads, beginning at 81 of the draft and ending on 220, make a double chariot wheel figure. The pattern should be woven as drawn in. Illustrated (60).

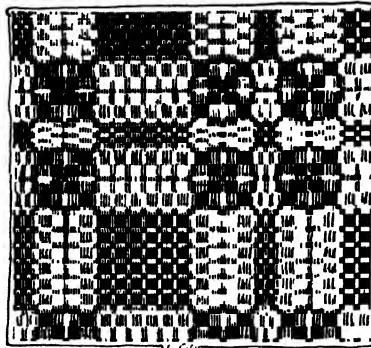
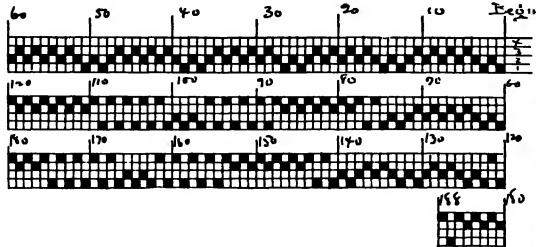
No. 90—this threading also weaves nine small wheels with a table, but the effect is different owing to the fact that part of the pattern is on opposites. It should be woven as drawn in, omitting the accidentals.

No. 91 is one of the oldest, best-known and best-loved of the old patterns. It appears in innumerable slight variations. A simple "Lover's Knot" pattern results from weaving this threading as drawn in. To weave as shown in the illustration treadle as follows:

Series III Group (c). Clusters of Star-and-Wheel Figures with a Table

No 84 Double Chariot Wheels (A)

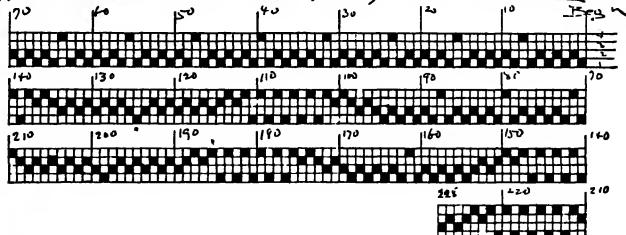
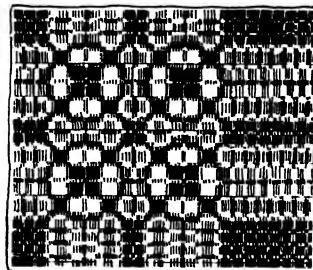
Church Windows



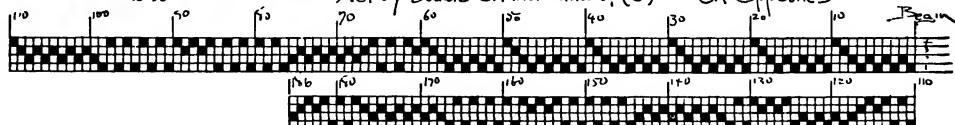
No 55, Double Chariot-Wheels. (B) from an old "Coverlid"



No. 86 Double Chariot-Wheels. (C), Dillia Sharron's Draft. Warren County, North Carolina



No. 87 Double Chariot-Wheels, (D) — On Opposites



No 88 Double Lover's Knot.

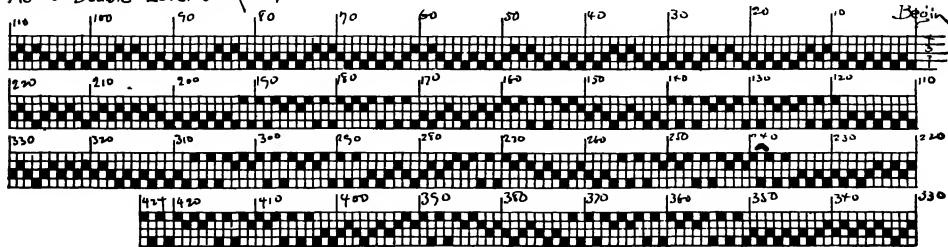
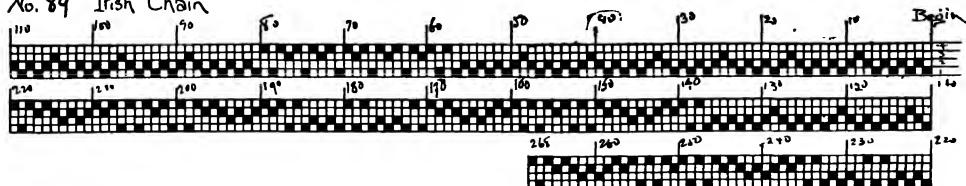


Diagram 18 (82)

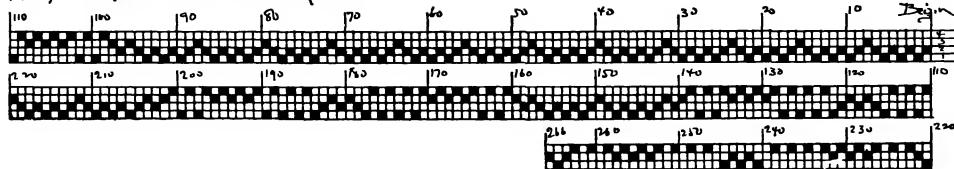
© M Atwater

Series III Group (C)

No. 89 Irish Chain

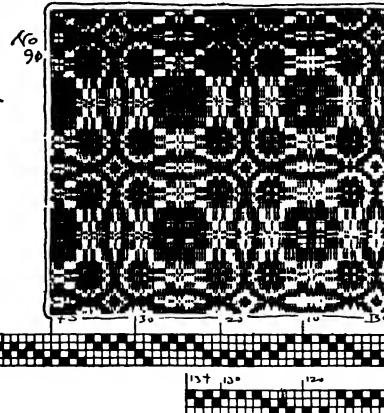
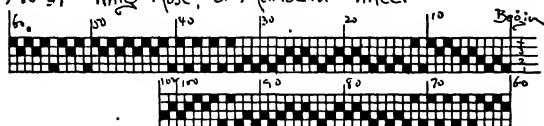


No. 90 A Wheel Pattern from Arkansas

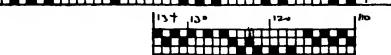


Group (d) Wheel-and-Rose Patterns

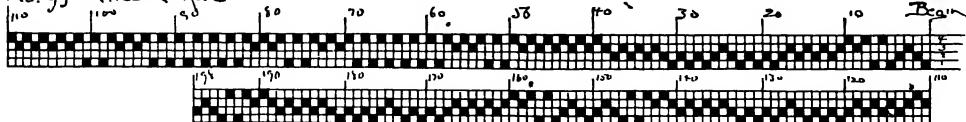
No. 91 Whig Rose, or Methodist Wheel



No. 92 Whig Rose on Opposites, from the Wade Collection, Pittsburgh Museum



No. 93 Wreath Rose



No. 94. Indiana Rose

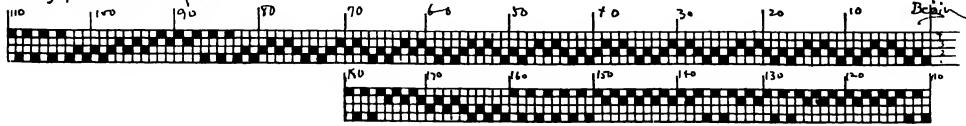


Diagram 19 (83)

M. M. Atwater

Treadle 2, 3 times	Large Rose
1, 3 times	Treadle 3, 9 times
1, 3 times	4, 9 times
4, 3 times	3, 2 times
3, 3 times	4, 2 times
	3, 2 times
Small Rose	4, 9 times
Treadle 2, 5 times	3, 9 times
1, 5 times	
2, 2 times	Repeat small rose
1, 5 times	Treadle 3, 3 times
2, 5 times	4, 3 times
	1, 3 times
	Repeat

No. 92 "Whig Rose" on opposites. This is a similar figure to No. 91 but with a very different effect.

Treadle 3, 4 times	Large Rose
1, 4 times	Treadle 3, 9 times
2, 4 times	2, 12 times
4, 4 times	4, 2 times
	2, 2 times
Small Rose	4, 2 times
Treadle 3, 6 times	2, 12 times
1, 6 times	4, 12 times
3, 2 times	Repeat small rose
1, 6 times	Treadle 4, 4 times
3, 6 times	2, 4 times

No. 93 "Wreath Rose." This pattern consists of one large rose and a group of small roses enclosed in rings.

Treadle 2, 2 times	Small Rose—Continued
1, 2 times	Treadle 1, 2 times
2, 2 times	2, 7 times
3, 2 times	1, 7 times
4, 2 times	
Small Rose	Large Rose
Treadle 1, 7 times	Treadle 4, 12 times
2, 7 times	3, 2 times
	4, 2 times

Large rose—Continued

Treadle 3, 12 times
 4, 2 times
 3, 2 times
 4, 2 times
 3, 12 times
 4, 2 times
 3, 2 times
 4, 12 times

Repeat small rose

Diamond figure

Treadle 4, 2 times
 3, 2 times

Diamond figure—Continued

Treadle 2, 2 times
 1, 2 times
 2, 2 times
 1, 2 times
 2, 2 times
 3, 2 times
 4, 2 times

Repeat small rose

Treadle 4, 2 times
 3, 2 times
 2, 2 times
 1, 2 times

This pattern may also be woven as drawn in, producing a "Lover's Knot" effect.

No. 94 treadle as follows:

Treadle 2, 4 times } 10 times
 1, 4 times }

Treadle 2, 4 times
 3, 5 times
 4, 5 times
 1, 5 times
 2, 5 times
 3, 12 times

Treadle 4, 12 times
 3, 4 times
 4, 4 times
 3, 4 times
 4, 12 times
 3, 12 times
 2, 5 times
 1, 5 times
 4, 5 times
 3, 5 times

DIAGRAM 20 (84)

Pattern 95 treadle as follows:

Treadle 2, 3 times
 1, 3 times
 4, 3 times
 3, 3 times

Treadle 3, 3 times
 4, 3 times
 1, 3 times
 2, 3 times

Large rose

Treadle 2, 10 times
 1, 10 times
 2, 4 times
 1, 4 times
 2, 4 times
 1, 10 times
 2, 10 times

Small rose

Treadle 3, 6 times
 4, 6 times
 3, 2 times
 4, 6 times
 3, 6 times

Series III Group (d)

No. 95. Pond lily



No. 96 Maltese Cross

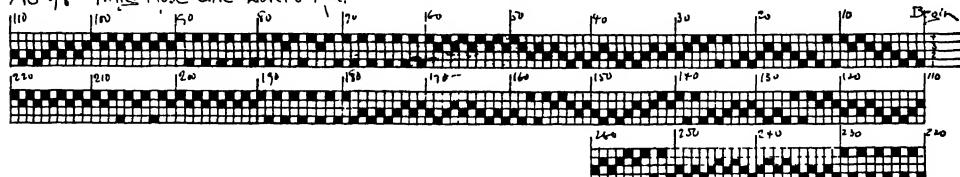


No. 97 Large Maltese Cross
from the old Daggett House Coverlet

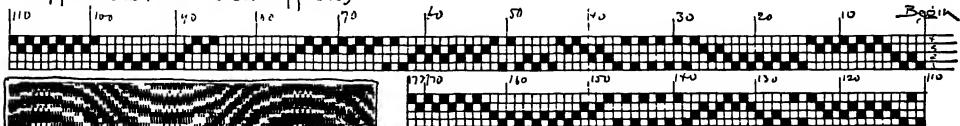


Group (e) Wheel-Patterns with both Stars and Rosettes

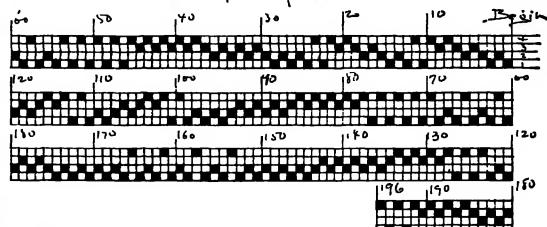
No. 98 White Rose and Lover's Knot



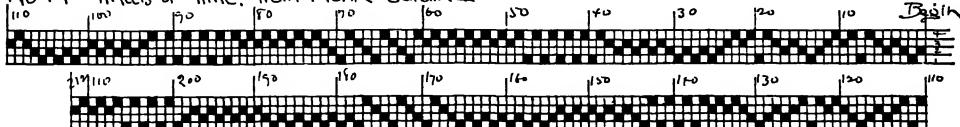
No. 99 A Small Pattern on Opposites



No. 100 Wheel of Fortune, or Cup and Saucer



No. 101 Wheels of Time, from North Carolina



M. M. Atwater

Diagram 20 (84)

This pattern may also be woven as drawn in, producing stars instead of roses.

No. 96 treadle as follows:

Treadle 1, 4 times	Treadle 3, 6 times
2, 3 times	2, 6 times
3, 3 times	1, 6 times
4, 3 times	4, 3 times
1, 6 times	3, 3 times
2, 6 times	2, 3 times
3, 6 times	1, 4 times
2, 2 times	2, 3 times
3, 6 times	3, 4 times
2, 2 times	2, 3 times

This pattern is also excellent when woven as drawn in, but gives, of course, an entirely different effect.

No. 97 is an odd pattern. It should be treadled as follows:

Treadle 1, 4 times	Treadle 1, 4 times
4, 3 times	2, 7 times
3, 3 times	1, 7 times
2, 3 times	4, 7 times
1, 4 times	3, 7 times
2, 7 times	2, 7 times
3, 7 times	1, 4 times
4, 7 times	2, 3 times
1, 7 times	3, 3 times
2, 7 times	4, 3 times

No. 98 is a handsome pattern composed of alternating "Lover's Knot" and "Whig Rose" figures. It should be woven as drawn in.

No. 99 is a similar figure to the above, but much smaller and arranged on opposites. Woven as drawn in with the accidentals omitted.

No. 100 "Wheel of Fortune," etc. This is a very famous old pattern and a large number of drafts exist, differing slightly in detail. It is woven as drawn in.

No. 101 is a figure similar to No. 99 but arranged on opposites. As the treadling is a little obscure in places it is appended:

Treadle 1, 3 times	Treadle 3, 3 times
2, 3 times	4, 3 times
4, 3 times	2, 3 times
3, 3 times	1, 3 times
1, 3 times	3, 3 times
2, 3 times	4, 3 times
4, 3 times	2, 3 times
3, 3 times	1, 3 times
1, 6 times	3, 6 times
2, 7 times	4, 7 times
4, 10 times	2, 10 times
3, 12 times	1, 12 times
1, 2 times	3, 2 times
3, 2 times	1, 2 times
1, 2 times	3, 2 times
3, 2 times	1, 2 times
1, 2 times	3, 2 times
3, 12 times	1, 12 times
4, 10 times	2, 10 times
2, 7 times	4, 7 times
1, 6 times	3, 6 times

Repeat

DIAGRAM 21 (85)

No. 102 is the Sunrise Coverlet in the Boston Museum. This is one of the handsomest of the "Sunrise" patterns. The ancient coverlet in question is sadly woven in that there are numerous mistakes in both threading and readling, but the effect is quite lovely. Two colors are used, a brown and a pinkish tan that may once have been rose. The colors are used in alternating blocks all through the work. The center of the Sunrise figure is the large 1-2 block, threads 114 to 124, the draft being written from center to center of the little cross between the two tables of a "window-sash" figure. The seam of a coverlet should fall where the draft begins. Should be woven as drawn in. Illustrated (3).

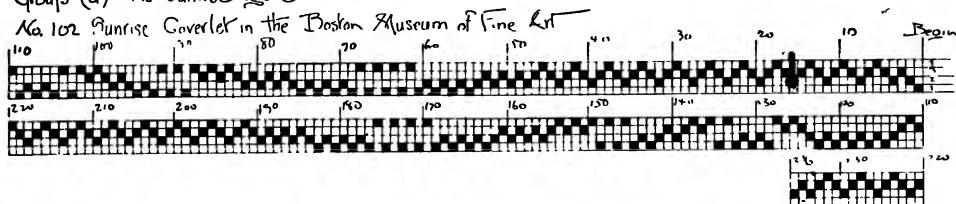
No. 103 is in structure a pattern similar to No. 102 but gives an entirely different effect.

No. 104 (illustrated, 17) is a very serious and balanced sort of pattern. "Harmony" seems, somehow, a better name for it than "Walls of Jericho." However, both names are amusing. There is something very calm and dignified and purposeful about this pattern, though it is not really beautiful.

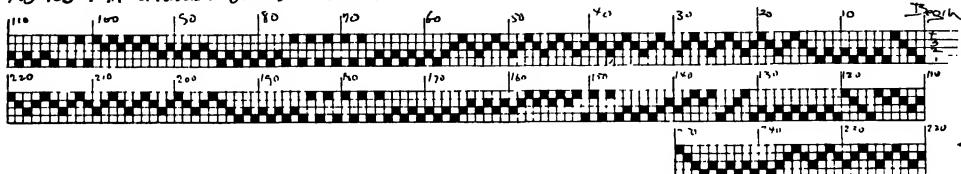
Series IV The Radiating Patterns

Group (a) The Sunrise Figure with Tables

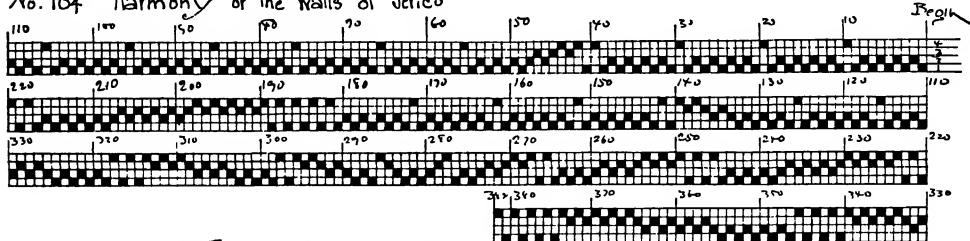
No. 102 Sunrise Coverlet in the Boston Museum of Fine Art



No. 103 An Unusual Sunrise Pattern

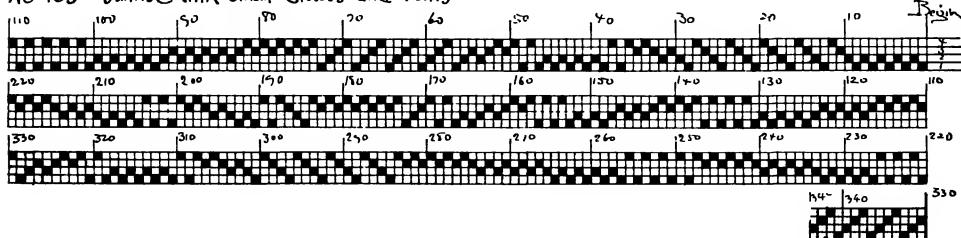


No. 104 Harmony or the Walls of Jerico



Group (b) The Sunrise Figure in Various Combinations

No. 105 Sunrise With Small Crosses and Twills



No. 106 Sunrise on the Walls of Troy

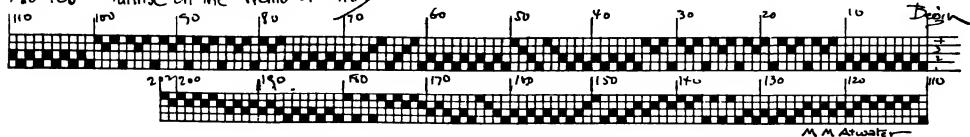


Diagram 21 (85)

M M Atwater

It would not suit a frivolous occasion, but as a coverlet for a great four-poster in a serious and formal bed-chamber it would be perfect. Woven as drawn in.

No. 105 is the draft of a "Sunrise" pattern illustrated opposite page 32 of Eliza Calvert Hall's coverlet book. Woven as drawn in. Similar to pattern illustrated (42).

No. 106 again is an interesting version of the "Sunrise" figure.

The pattern known as "Blazing Star" is woven on any "Sunrise" threading by treadling the blocks in succession as for twill:—treadles 1, 2, 3, 4, and repeat,—using the same number of shots each time. The pattern varies, of course, somewhat with the draft used. The "Blazing Star" illustrated in Eliza Calvert Hall's book opposite page 80 was woven on draft 104.

On opposites. No ancient draft for "Sunrise" on opposites has reached me. There must have been one, and anyone wishing to produce such a pattern may do so by writing the blocks of the pattern in the succession shown on the little "Turkey-Foot" draft (3), Diagram 1.

DIAGRAM 22 (86)

No. 107, "Lee's Surrender," is a very famous and much admired pattern. It is illustrated (43). It will be noted it consists of a "Sunrise" figure between two tables written on opposites, with a large square composed of small stars. The pattern is often used for rugs. Woven as drawn in.

No. 108 is from an interesting old coverlet found in Cambridge, Mass., and apparently exactly the same as the coverlet in Eliza Calvert Hall's book opposite page 60. The coverlet in the illustration is so folded that the border does not show to advantage. The weaving was done in two colors. The effect of the extremely elaborate wide border and the plain central part is very good indeed.

No. 109 is a pattern composed of a "Sunrise" figure and a group of stars so arranged that a wheel-pattern is produced. Woven as drawn in.

No. 110 is a simple pattern, to be woven as drawn in.

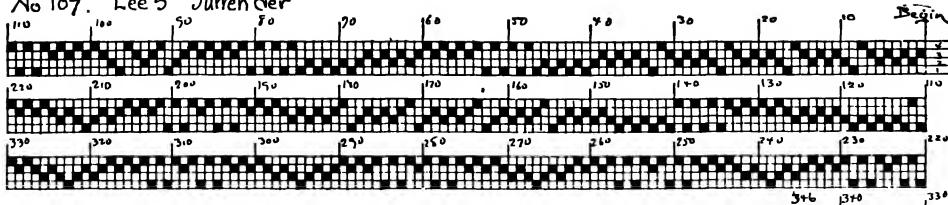
No. 111 should likewise be woven as drawn in.

DIAGRAM 23 (87)

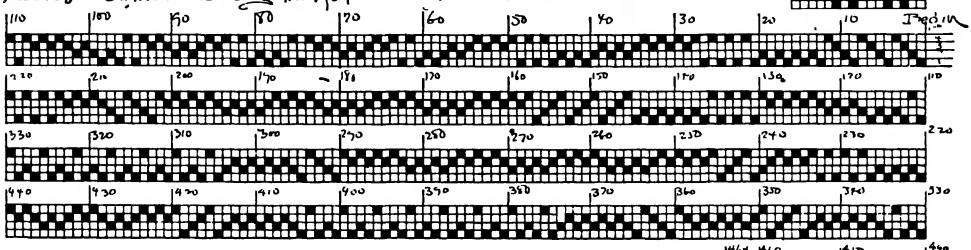
No. 112 is a pattern composed of large flower-like figures separated by tables. It should be woven as drawn in.

Series IV. Group (b)

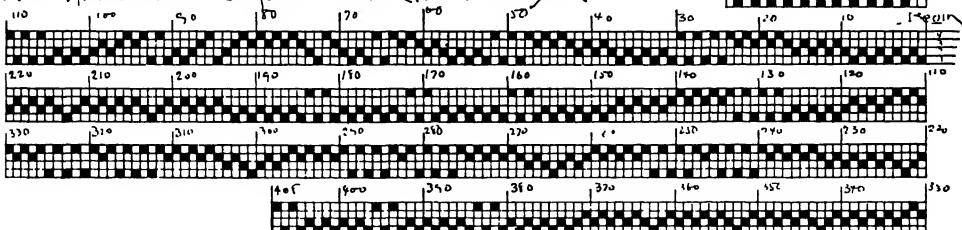
No 107. Lee's Surrender



No. 108 Sunrise and Dog Tracks, — from an Old Coverlet

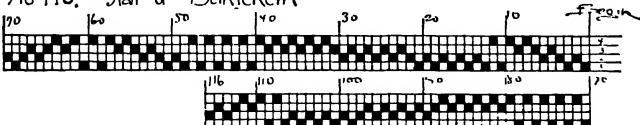


No. 109, An Elaborate Composite Pattern, from New York



Group (c) Patterns Based on the Blooming Leaf Figure

No 110. Star of Bethlehem



No 111 The Downfall of Paris

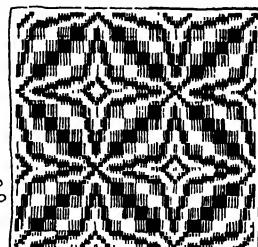
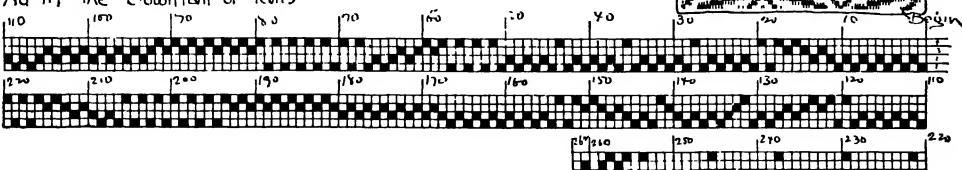
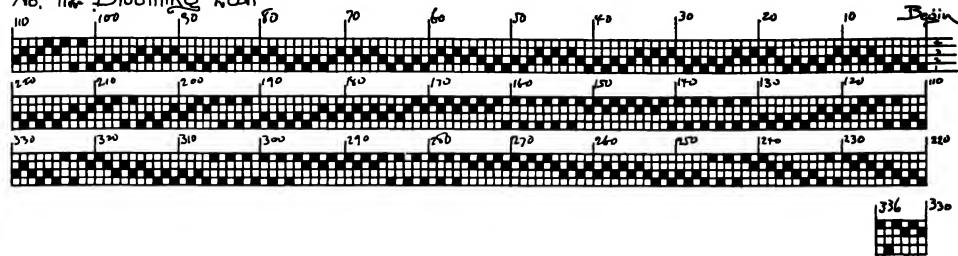


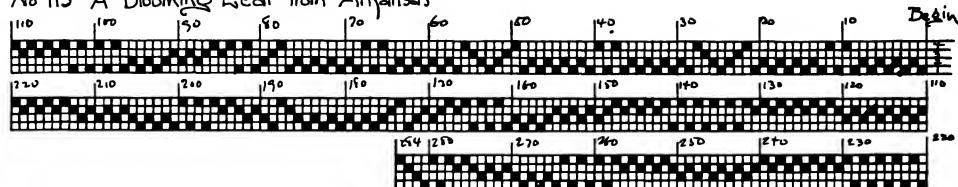
Diagram 22 (86)

Series IV. Group (c)

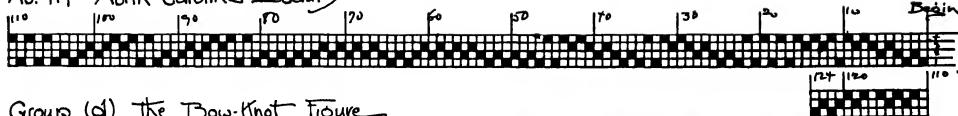
No. 112 Blooming Leaf



No. 113 A Blooming Leaf from Arkansas

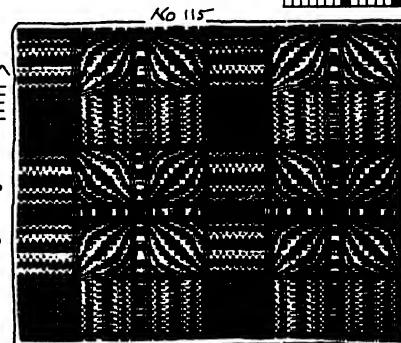
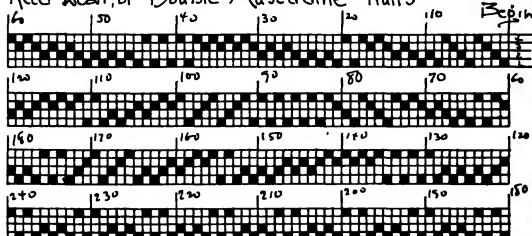


No. 114 North Carolina Beauty

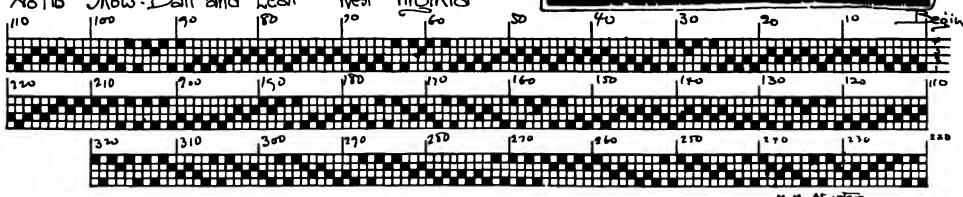


Group (d) The Bow-Knot Figure

No. 115. Double Bow-Knot, or Maple Leaf, or Reed Leaf, or Double Muscadine Hulls



No. 116 Snow-Ball and Leaf West Virginia



M. M. Atwater

Diagram 23 (87)

No. 113 is a pattern similar to 112 but with more variety and rather more interesting in effect. Woven as drawn in.

No. 114 is a pattern composed of stars and leaf figures separated by curious oval forms. It is illustrated, 8 (55).

No. 115 is the typical form of a very famous pattern that occurs in a great number of variations, and like the "Sunrise" figure is found in many compound patterns. It may also be woven like "Blazing Star" and produces a palm-like figure. Illustrated (40). The pattern is ordinarily woven as drawn in.

No. 116 is an unusual pattern consisting of a bow-knot figure and a group of stars separated by small tables on opposites. As the blocks in this pattern are none of them very large, the pattern may be used for the weaving of upholstery as well as for coverlets, runners and the like.

DIAGRAM 24 (88)

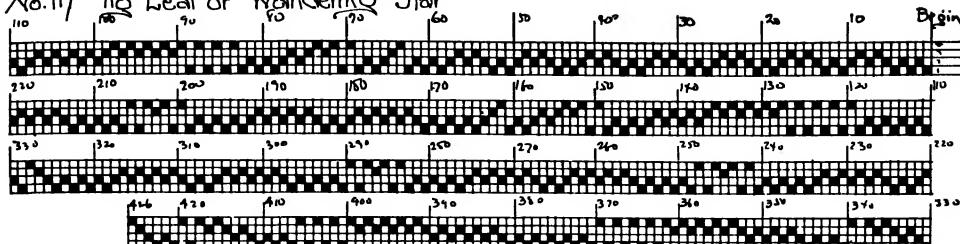
No. 117 is a large and elaborate pattern consisting of a square in the "Sweetbriar Beauty" figure, surrounded by scallops and separated by large leaf-forms and small tables. It should be woven as drawn in. No. 118 is a very unusual pattern on opposites. For lack of space only a part of the figure is illustrated, and as the treadling is somewhat obscure it is supplied below:

Blocks:
Treadle 1, 10 times
3, 3 times
4, 3 times
2, 3 times
1, 3 times
3, 3 times
4, 3 times
2, 3 times
1, 10 times
2, 3 times
4, 3 times
3, 3 times
1, 3 times
2, 3 times
4, 3 times
3, 3 times

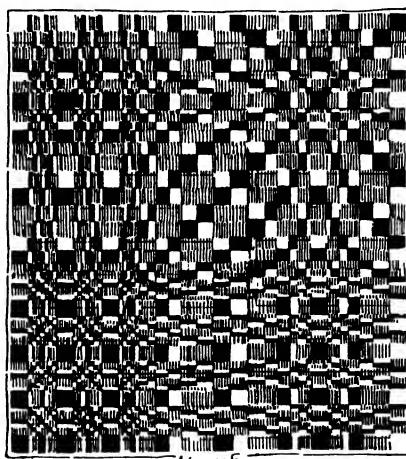
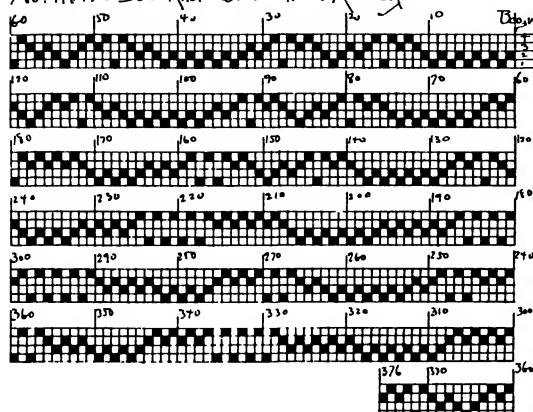
Repeat twice

Series IV, Group (d)

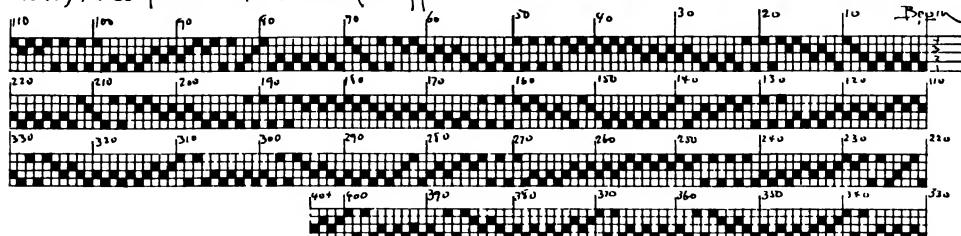
No. 117 Fig Leaf or Wandering Star



No. 118. A Bow Knot Draft from Kentucky



No. 119 A Composite Pattern from Mississippi



No. 120 The Pomegranate

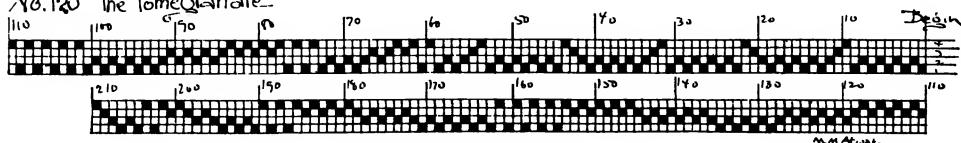


Diagram 24 (88)

M.M. Atwater

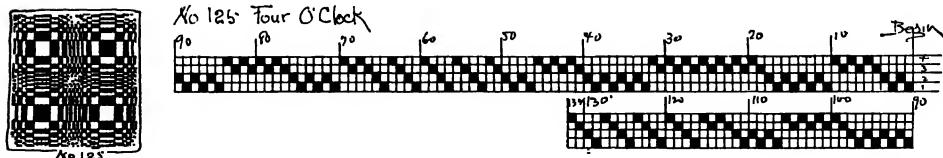
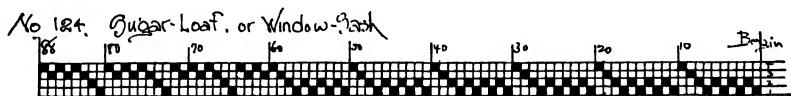
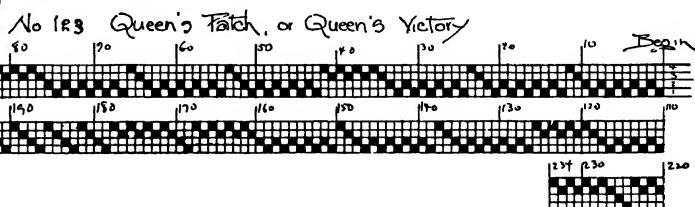
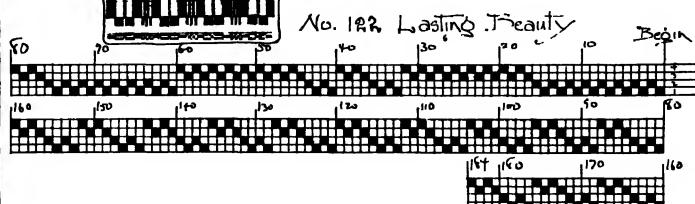
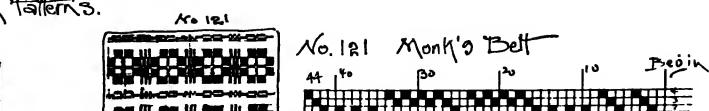
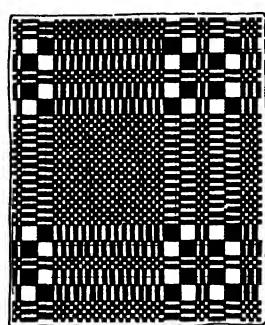
Treadle	1, 10 times	Treadle	1, 10 times
	3, 3 times		2, 3 times
	4, 3 times		4, 4 times
	2, 3 times		3, 5 times
	1, 3 times		1, 6 times
	3, 3 times		2, 8 times
	4, 4 times		4, 8 times
	2, 5 times		3, 9 times
	1, 6 times		1, 10 times
	3, 8 times		2, 9 times
	4, 8 times		4, 8 times
	2, 9 times		3, 8 times
	1, 10 times		1, 6 times
	3, 9 times		2, 5 times
	4, 8 times		4, 4 times
	2, 8 times		3, 3 times
	1, 6 times		1, 3 times
	3, 5 times		2, 3 times
	4, 5 times		4, 3 times
	2, 3 times		3, 3 times

No. 119 is a pattern consisting of a group of leaf-forms and a square in a diamond figure. The first 142 threads of the draft may be used alone as a repeat if desired. This gives a pattern of leaf-forms that flow into one another.

No. 120 should be treadled rose-fashion as follows:

Treadle	1, 10 times	Treadle	1, 4 times
	2, once		2, 4 times
	3, once		3, 6 times
	4, twice		4, 6 times
	1, 10 times		1, 8 times
	4, once		2, 8 times
	3, once		3, 8 times
	2, once		4, 8 times
	1, 10 times		1, 8 times
	2, once		4, 8 times
	3, once		3, 8 times
	4, once		2, 8 times
	1, 10 times		1, 8 times
	4, once		4, 6 times
	3, once		3, 6 times
	2, once		2, 4 times
	1, 10 times		1, 4 times
	2, once		4, 3 times
	3, once		3, 3 times
	4, once		2, 3 times
	1, 3 times		1, 3 times
	2, 3 times		4, once
	3, 3 times		3, once
	4, 3 times		2, once

Series V. The Patch-Patterns
Group (a) Two-Block Patterns.



Group (b) Three Block Patch Patterns

No. 126. Name Unknown



No. 127 Cloudless Beauty, or Richmond Beauty

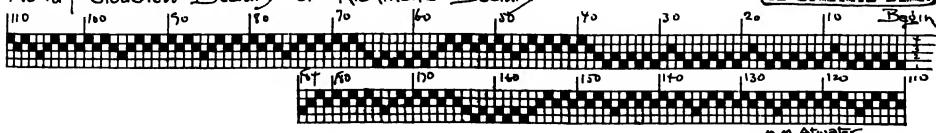


Diagram 25 (89)

DIAGRAM 25 (89)

No. 121—"Monk's Belt"—is not, strictly speaking, an American colonial pattern. It is a pattern of very general use all over the world, but especially in Russia, and in the Scandinavian and other Germanic countries. It is much used by modern American weavers and is included here for the sake of completeness. A number of the "Patch" patterns are similar in construction. There are in this pattern two pattern-sheds only, and a four-treadle tie-up can be used. In weaving on the ordinary six-treadle tie-up, treadles 2 and 4 are not used.

No. 122 is like a large "Monk's Belt" with the series of small blocks greatly increased. There are a large number of similar patterns used almost exclusively for the weaving of white counterpanes by the "Honeycomb" method, and these will be found in a later series of drafts.

This pattern may be made half the size shown here by making each block of half the number of threads indicated. A great many beautiful border designs may be woven on this threading.

No. 123, "Queen's Patch," is a simple pattern with a very handsome effect. It looks well when woven in two colors. Illustration (55), 1, shows a modification of this pattern as used at Berea, Kentucky, that differs slightly from our draft. Our draft is better for large pieces, and is very handsome for hangings or a couch-cover.

No. 124—"Sugar-Loaf," or "Window-Sash," is a pattern very attractive for small pieces and for weaving in a number of colors.

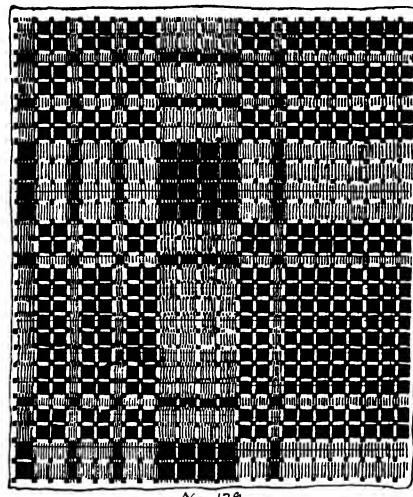
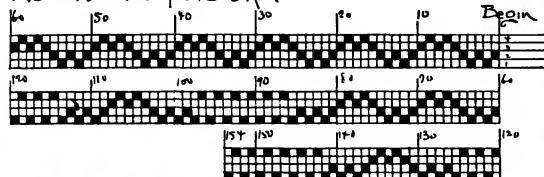
No. 125 is also a good small pattern. The first 64 threads of the draft may be used alone as a repeat if desired. This will make all the figures alike instead of alternating "open and shut" as in the diagram.

No. 126—small figure on opposites separated by blocks. This pattern is woven on three pattern sheds, using treadles 1, 3 and 4. Treadle 2 is to be omitted. Otherwise the pattern is woven as drawn in.

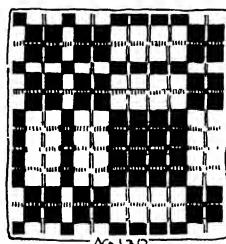
No. 127 is woven without use of the fourth treadle—the 1-4 shed. It is a plain pattern, but excellent for many purposes. It is similar in some ways to "Missouri Patch." This is the pattern called "Youth and Beauty" in Eliza Calvert Hall's coverlet book. The name "Youth and Beauty" appears, however, to belong properly to a different—though similar—pattern.

Series V Group (b)

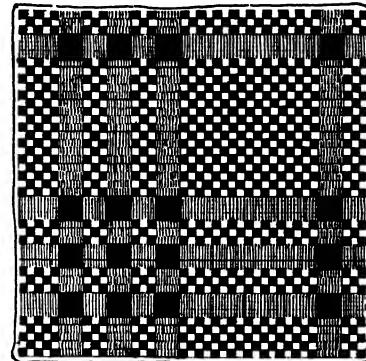
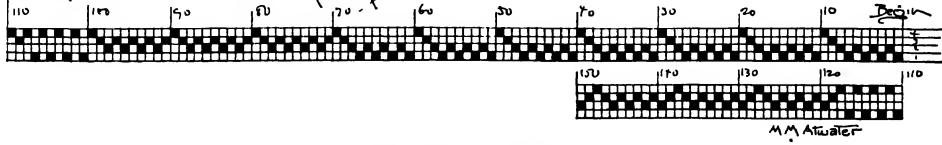
No 128 Leopard Skin



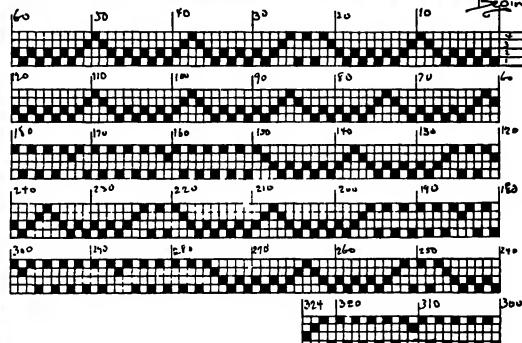
No 129



No 151 A Patch Tattein from Kentucky

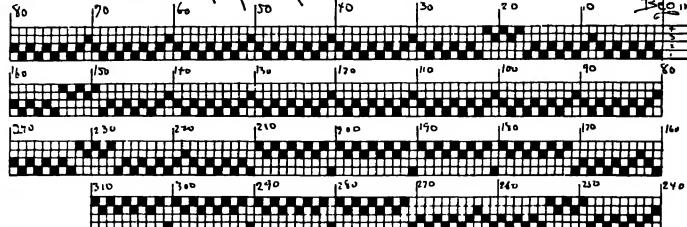


No 129
The Waterfall, —
from Alabama



Group (c) Four Block Hatch Patterns

No 130 Missouri Check or Missouri Hatch



MM Atwater

Diagram 26 (90)

DIAGRAM 26 (90)

No. 128 is woven on treadles 1, 3 and 4. Woven as drawn in, omitting the small 2-3 blocks.

Nos. 129 and 130 are similar patterns in so far as the arrangement of blocks is concerned, but the effect is very different, as will be seen from the illustration. A small part only of the figure is illustrated at 130.

Pattern 129 is woven on three treadles, treadle 2 being omitted. Otherwise treadled as drawn in.

No. 130 is a four-block pattern. In treadling it is usual to omit the 1-4 accidentals between the 1-2 and 3-4 blocks. Treadled as drawn in.

No. 131 should be treadled:

Treadle 1, 8 times	7 times	Treadle 3, 2 times
3, 2 times		4, 8 times
2, 8 times	3 times	3, 2 times
3, 2 times		2, 8 times
4, 8 times	3 times	3, 2 times

DIAGRAM 27 (91)

No. 132 is similar to "Leopard Skin." Should be woven as drawn in, omitting accidentals.

Nos. 133, 134 and 135 are similarly woven—as drawn in, omitting accidentals.

No. 136, however, is woven exactly as drawn in, accidentals *not* omitted. The coverlet, of which this is the draft, is a very handsome one in black and red.

DIAGRAM 28 (92)

No. 137. This and the other patterns of the group are characterized by the fact that the figures interlock in an odd way, and are composed of small blocks of uniform size. No. 137 is written as small as possible, for use in upholstery. The pattern is excellent for coverlets, for rugs and other large work. For this use, the blocks should, however, be increased by two threads each, and the repeat will then cover 338 threads.

The draft may also be written with all 1-2 and 3-4 blocks increased by two threads and the 2-3 and 1-4 blocks left as they are. This makes a repeat

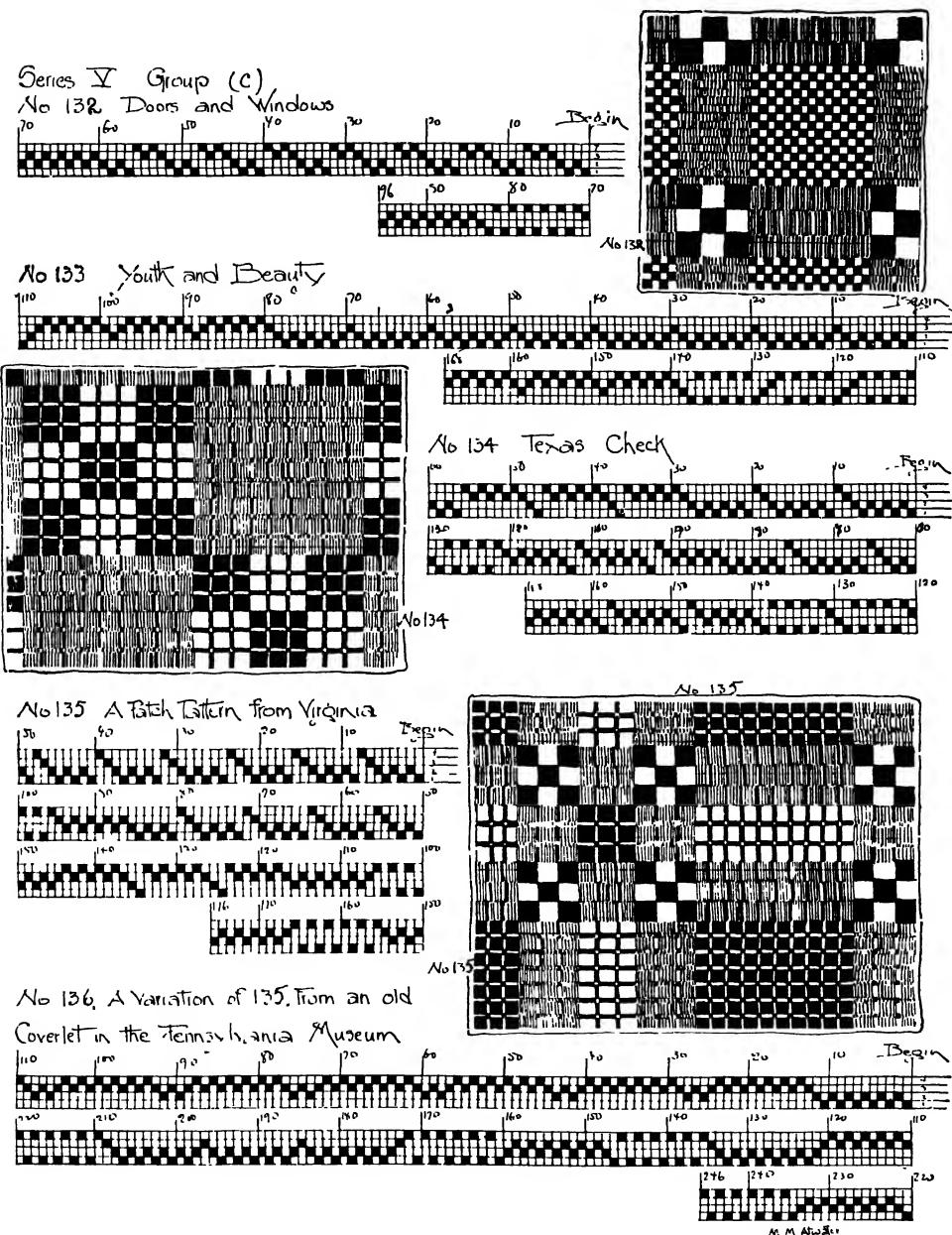
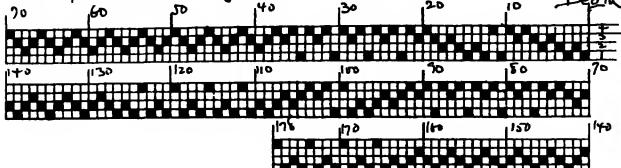


Diagram 27 (91)

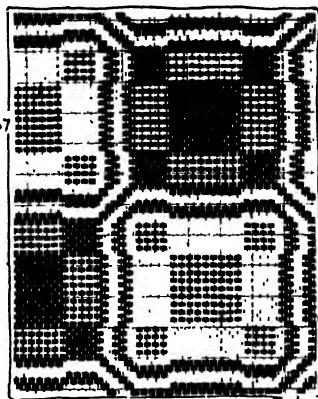
Series VI Miscellaneous — Patterns not readily classifiable under the preceding heads

Group (a) The Sunflower Patterns.

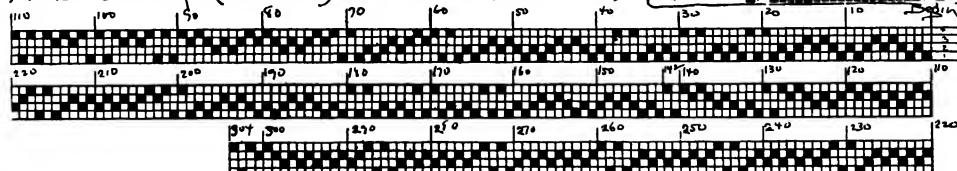
No. 137 Ladies' Delight or Sunflower



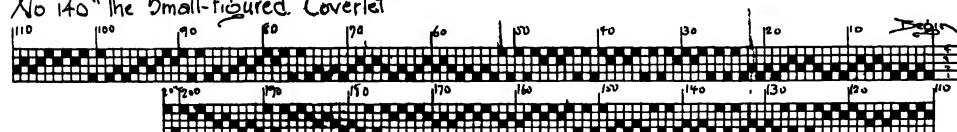
No. 137



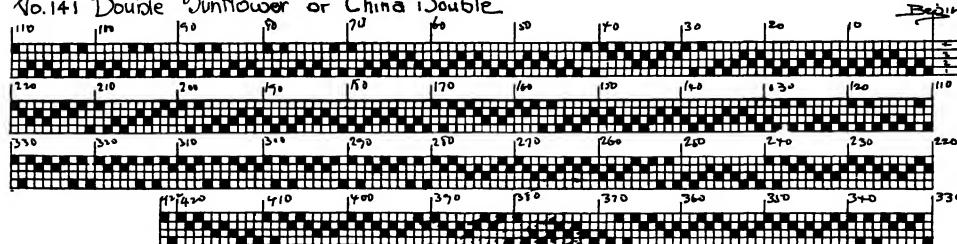
No. 138 Double Rose (to thread 148) and Cluster of Vines, No. 139



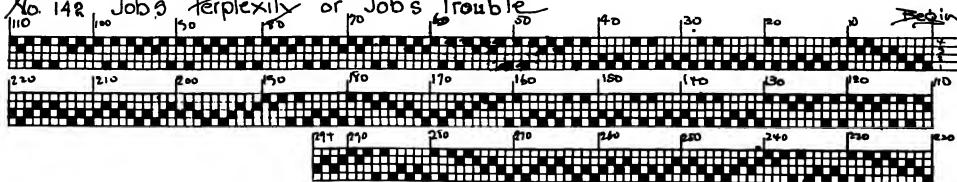
No. 140 "The Small-Figured Coverlet"



No. 141 Double Sunflower or China Double



No. 142 Job's Perplexity or Job's Trouble



M.M. Atwater

Diagram 28 (92)

of 258 threads. This and the other patterns in this group may be woven in two colors—1-2 and 3-4 blocks in the darker color, 2-3 and 1-4 blocks in the lighter.

Nos. 138 and 139 are similar patterns—the first 142 threads of the draft constitute the repeat for "Double Rose." The 304 threads of the complete repeat produce a pattern known as "Cluster of Vines."

No. 140 is a good small figure for upholstery or linen.

No. 141 is a large and elaborate pattern, as is also No. 142. The size of the blocks in all these patterns is small, however, and therefore even when the figure is large, the fabric is exceptionally closely woven and solid. These patterns are useful for fabrics designed for hard wear,—rugs, upholstery and the like.

DIAGRAM 29 (93)

No. 143 and No. 144 are very much the same in construction but differ in proportion. The effect is quite different, No. 144 being a rather more dashing pattern than No. 143.

("Federal Knot" and "Flag of Our Union," classified elsewhere, have some of the characteristics of these two patterns.)

No. 144 is called "The Hexagon" in North Carolina—it is somewhat difficult to see why.

Both Nos. 143 and 144 are woven as drawn in.

The Group (c) patterns are particularly pleasing. The small pattern with no name, given at draft No. 146, is excellent for upholstery, linen and all closely woven fabrics. The other two drafts are charming for large uses,—hangings, coverlets, pillow-tops, etc.,—but are inadvisable for rugs on account of the long overshot over some of the blocks.

No. 147 is probably the best known of the group and is a very striking and satisfactory pattern for coverlets. Modern weavers seem to know it by the name of "Miss Cobb No. 2" but the other two names are more ancient and rather more interesting. Illustrated (50).

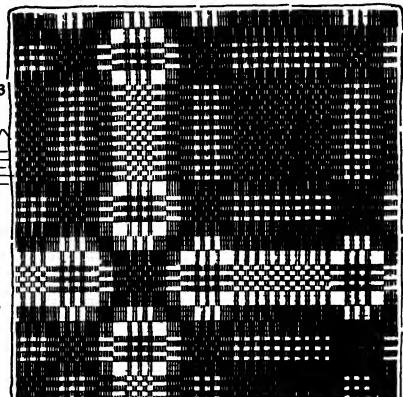
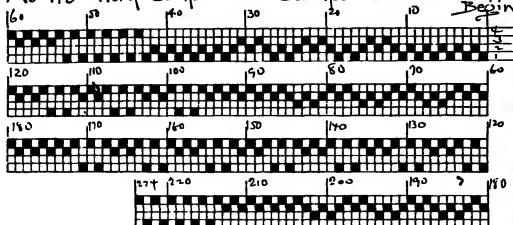
DIAGRAM 30 (94)

No. 148 is the draft of a pattern in 8-harness overshot weaving. This is

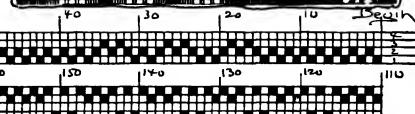
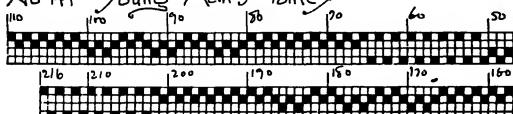
Series VI. Miscellaneous

Group (b)

No 143 Work Complete or Catalpa Flower

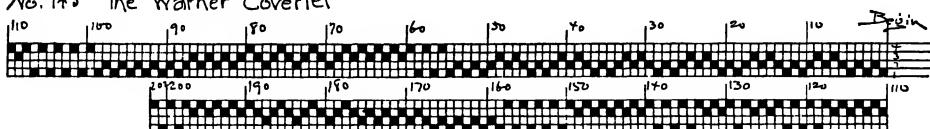


No 144 Young Man's Fancy

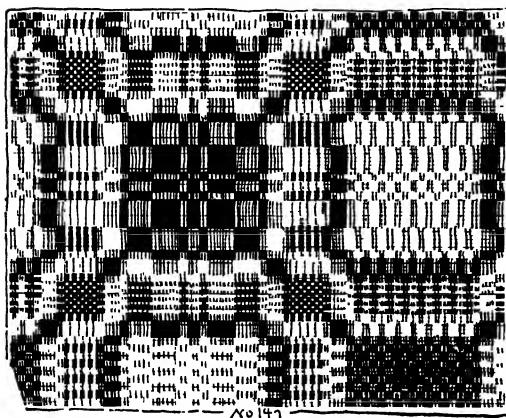
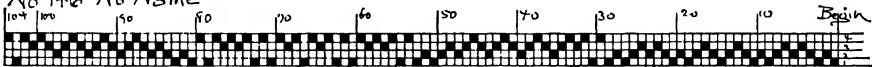


Group (c)

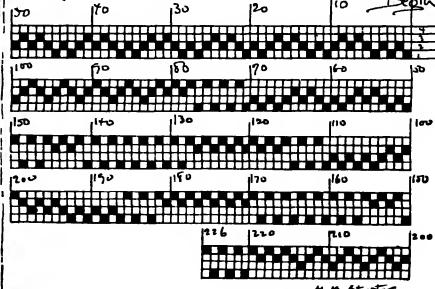
No. 145 The Warner Coverlet



No 146 No Name



No 147 Velvet Rose Indiana Frame Rose
or No 155 Cobb 22



M M Atwater

Diagram 29 (93)

a very interesting weave but extremely rare. The pattern illustrated is from one of the John Landes drawings arranged for this type of weaving. The effect, as will be noted from the illustration, is of large half-tone areas with plain tabby squares behind the blocks of the pattern. The weave is given

Series VI Group (d) Overshot Patterns on Eight Harnesses.

No. 148. A Pattern adapted from the John Landes Drawings

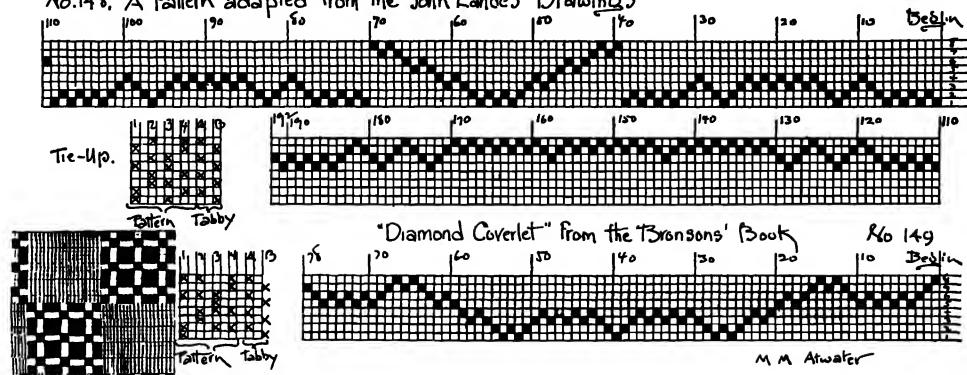
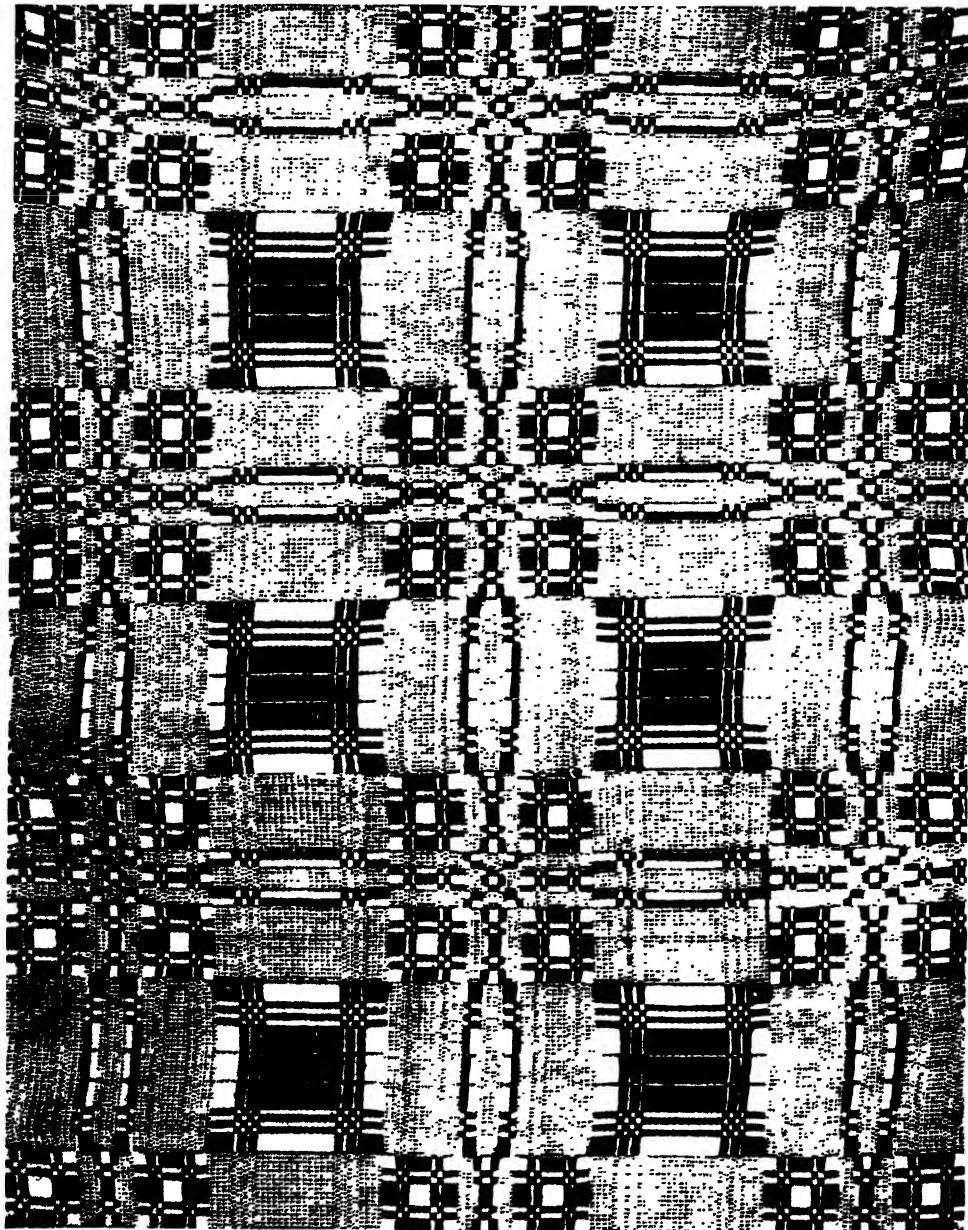


Diagram 30 (94)

in the Bronson book, and draft No. 149 is taken from that book. Any four-block pattern can be drafted in this fashion for eight-harness weaving. Two methods of tie-up are given. Either tie-up can be used with either threading.



(95) Effect produced from arrangement of John Landes for 8-harness overshot weaving.

CHAPTER FOURTEEN

THE SUMMER AND WINTER WEAVE

THE "summer and winter" weave has special historic and sentimental interest for American weavers due to the fact that it appears to be a method of weaving peculiar to America. And it has also very special artistic and practical values.

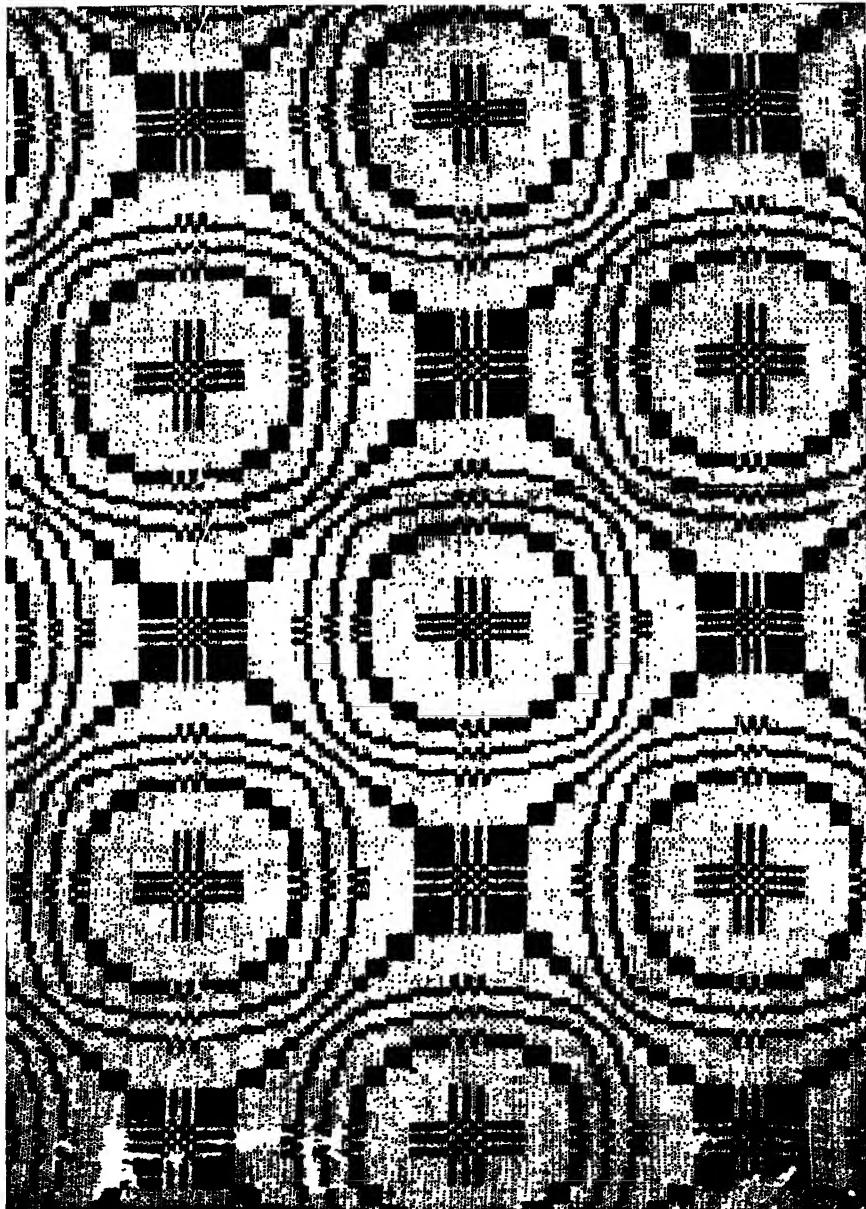
The fabric produced by this weave is structurally better than a fabric in overshot weave because there are no long overshot skips to catch and pull and to wear off. It is therefore an ideal weave for upholstery fabrics, for rugs and coverlets, and is also handsome in linen.

Then, too, this weave offers far wider possibilities in the matter of design than does the overshot weave. Blocks may be of any size and may overlap and there is no problem in the arrangement of half-tone areas.

The effect of a pattern in summer and winter weave is a softened and subdued effect because of the interweaving of the pattern thread with the whole of the ground. There is no sharp contrast between ground and figure.

As in other weaves, the number of blocks in a pattern is limited by the number of harnesses, and patterns of more than six blocks are rare, the majority of the patterns being four-block patterns often similar in figure to the older four-block overshot patterns.

We can only guess why this weave is so rare. It requires a loom somewhat more elaborate than the usual cottage variety of hand-loom, but not much more elaborate. The work was probably rarely professional, but on account of slightly greater elaboration must have been limited to the better weavers among the domestic manufacturers; and when the great change came with the introduction of machinery this was one of the first things to be forgotten—probably because known to a few weavers only.



(96) An ancient piece of summer and winter weave from Rhode Island.
Pattern: Wheel of Fortune. Draft number 193.

In structure a summer and winter fabric consists of a plain tabby foundation overlaid and underlaid by a pattern weft that is bound into the fabric by every fourth warp-thread. For the pattern blocks the weft passes over three threads and under the fourth, while across the spaces of the ground it passes under three threads and over the fourth. This is the result of the threading plan explained under "Notation." The weave is beautifully logical and is far easier to thread and weave than ordinary overshot work.

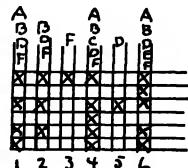
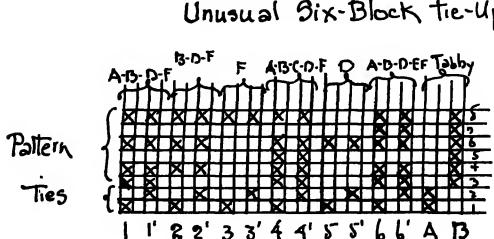
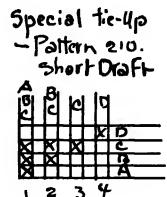
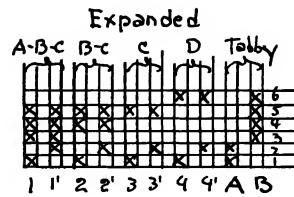
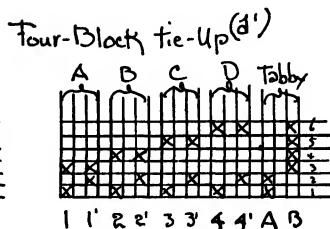
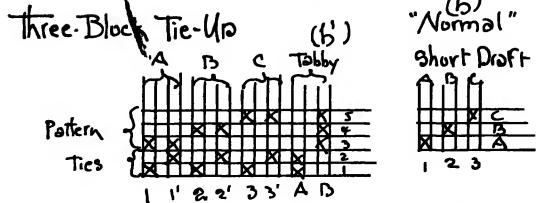
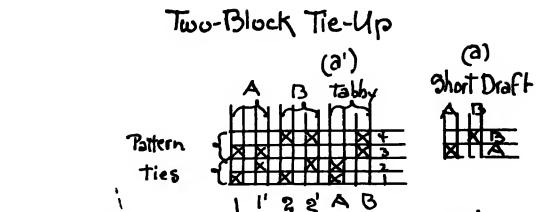
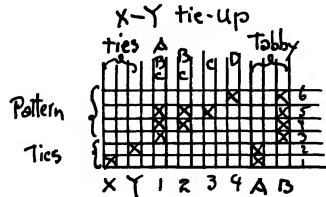
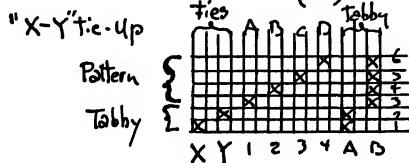
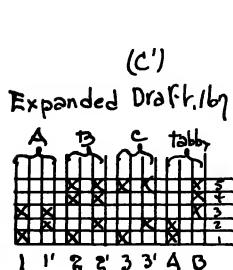
A loom operated by "jacks" or "coupers" is better for this weave than the ordinary counterbalanced loom with the harnesses hung in pairs over rollers—better for the reason that the sheds are not always balanced. It is by no means impossible to weave in the "summer and winter" manner on an ordinary loom, but the adjustment sometimes requires the putting in of false ties to preserve the balance. Six-harness and eight-harness patterns are somewhat easier to balance than patterns on five or on seven harnesses. Of course two-block patterns on four harnesses are perfectly simple and present no difficulties whatever.

For four-harness summer and winter weaving the ordinary six-treadle tie-up may be used, but the treadles should be rearranged to suit the weave. The 1-2 shed and the 3-4 shed are the tabby sheds in this weave; block A of the pattern is woven on the 1-3 and 2-3 sheds and block B on the 1-4 and 2-4 sheds. At (a') of the accompanying diagram this rearrangement is shown.

The tie-up for the more elaborate patterns follows the same general plan—the tabby treadles in all patterns of this weave are tied, one to bring down the two front harnesses and the other to bring down all the pattern harnesses, regardless of how many there may be.

The tie-up of the pattern treadles depends on the particular pattern to be woven. The simplest form of pattern tie-up is shown at (b') on the diagram. It will be noted that two treadles are tied for each block of the pattern. Block 1, with its pattern threads on harness number three, is tied 1&3 and 2&3; block 2 is tied 1&4, 2&4, and so on. Many patterns require a different tie-up, as several blocks may be tied to weave at the same time, but the system is the same. One treadle of each pair is tied to "1" and the pattern harnesses and the other treadle to "2" and the pattern harnesses. The tie-up drafts as given on the diagrams indicate the pattern harness only. Two treadles, as

Tie-Up Drafts for the Summer & Winter Weave



above, should be tied for each block as indicated on the tie-up scheme. A pattern of six blocks will require twelve treadles for the pattern and two for tabby,—fourteen treadles in all. An eight-block pattern will require eighteen treadles.

A different form of tie-up may be made, using fewer treadles. By this system the two front harnesses are tied each to a single treadle, and the pattern harnesses are tied as required by the pattern, and the two tabby treadles may be tied as usual or omitted. To weave on such a tie-up it is necessary to use both feet together to make the pattern shots, block A being woven; treadles X and 1 (tied to the third harness as shown on the diagram); treadles Y and 1; block B being woven X-2 and Y-2; and so on. Tabby A is woven treadles X&Y and the B tabby by bringing down all the pattern harnesses. Many patterns are so arranged that two pattern treadles will bring down all the pattern harnesses. Otherwise it is advisable to tie at last the B tabby to a separate treadle. This method of tie-up has nothing to recommend it except economy in the number of treadles. It is a makeshift, and the more conventional tie-up should be used wherever possible.

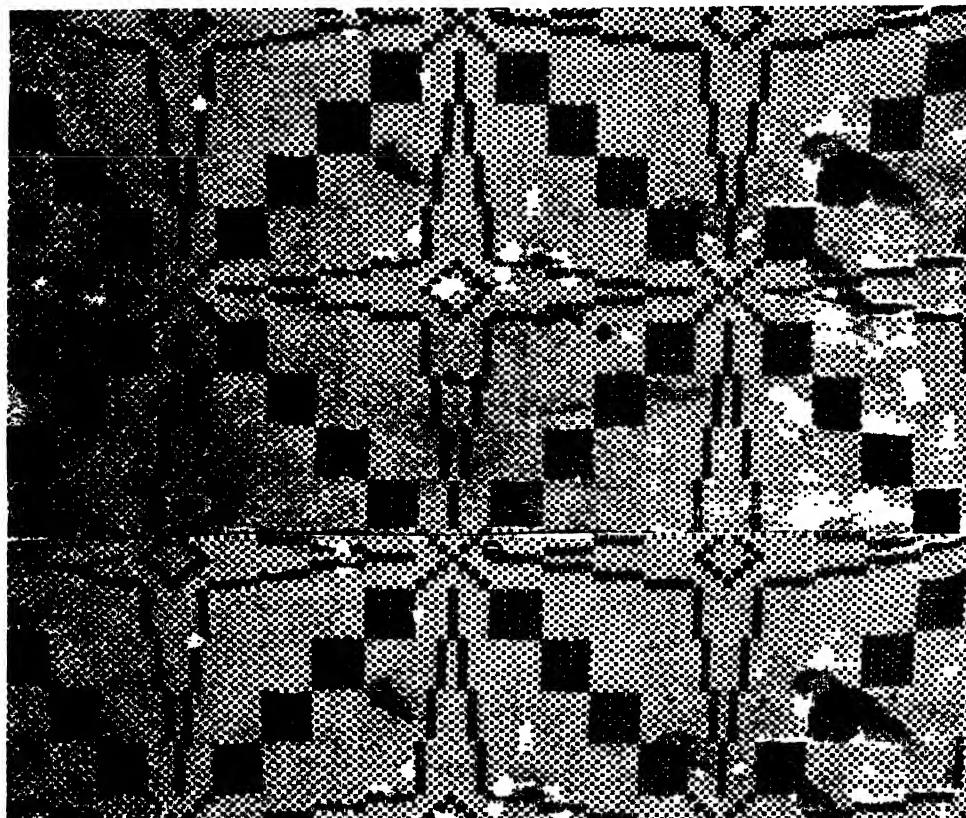
The weave may be varied in several ways. As usually woven, four pattern-shots and four tabby-shots are thrown for each unit of the pattern. It is therefore necessary to select warp and weft carefully so that the figures will be of good proportion—neither squat nor too long drawn out. The warp and pattern-weft should be of about the same grist and the tabby thread should be a great deal finer.

It is usual to weave the pattern shots in pairs, with the B tabby between pairs, thus: for a unit on block 1 tie-up as at (a'), pattern treadle 1; tabby, A; pattern treadle 2; tabby B; pattern treadle 2; tabby A; pattern treadle 1; tabby B. This gives a small "bird-eye" effect to the ground. A different texture results from throwing the A tabby between pairs, and it is necessary to watch carefully in order not to make a shift in the middle of a piece of work. This has a very bad effect.

For rug-weaving and the like with very heavy weft, weaving in pairs is out of the question. For this sort of thing it is best to weave "one and one"; block A treadle, 1, 2, 1, 2, with tabby between. In this weave it makes no

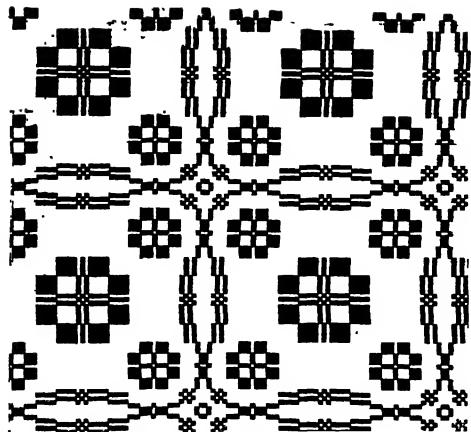
difference, of course, which tabby one throws first. For rugs two pattern shots to each unit of the weave is amply sufficient.

Another interesting way to treadle this weave is "on opposites," without a tabby. For an elaborate pattern a very large number of treadles is necessary

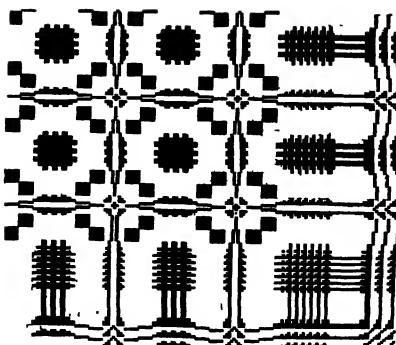


(98) From an ancient piece in summer and winter weave.
Draft number 182.

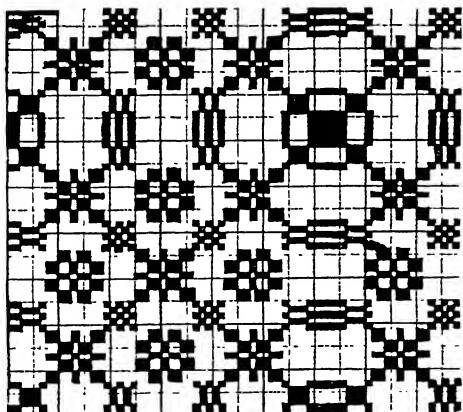
as there must be four treadles for each block of the pattern and two in addition for the tabby. Occasionally several of these treadles will be duplicates—it depends upon the particular pattern—and of course such duplicates may be omitted. With four-harness patterns the thing is simple, and of course the system is the same for all patterns. Suppose a two-block pattern in this weave



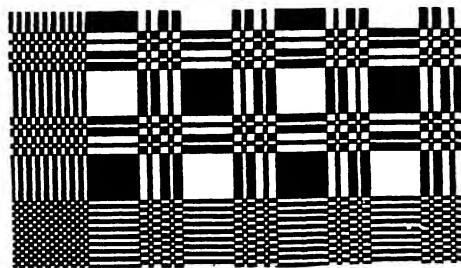
1



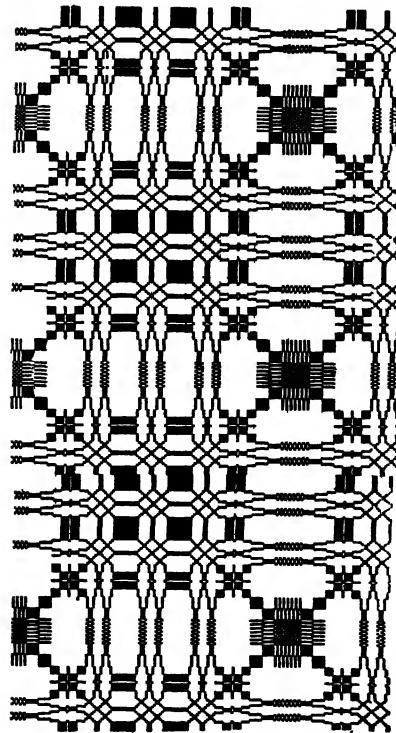
2



3



4



5

(99) Patterns for summer and winter or double weave. 1. Whig Rose. Draft number 206. 2. Single Snow-Ball. Draft number 226. 3. From an ancient damask. Draft number 204. 4. Two-block pattern, similar to draft number 163. 5. Philadelphia
Draft number 200

is to be woven in brown and tan: treadle the first unit; treadle 1 brown; treadle 3 tan; treadle 2 brown; treadle 4 tan—repeat these four shots till the block is square—treadle the second unit; treadle 1, tan; treadle 3, brown; treadle 2, tan; treadle 4, brown—and repeat till the block is square.

For this weave the warp should be spaced very far apart and the weft beaten up so close that the warp is entirely covered. The effect is of a sort of double weave. Fine materials will produce a thick, felt-like fabric when woven so, and rugs are very thick and handsome in this weave.

The summer and winter weave permits a much greater freedom of design than the ordinary overshot weave. A much greater difference in size between small blocks and large blocks is possible, as blocks may be of any size desired. This makes for greater elegance. It is also possible by the addition of one harness, to weave a solid border all around a piece of work. The side borders are threaded on this harness as wide as desired, just as for an additional block of the pattern. This harness is then tied to sink with each pattern shot. To treadle a solid border across the bottom the B tabby treadle is used with X and Y on the X-Y tie-up, or with any pair of pattern sheds on the ordinary tie-up. As, B&1, B&2.

Stripes and crossbars may be woven in the same manner, and several of the patterns from the old German book show crossbarred effects produced in a similar way.

There are other advantages in the summer and winter weave. It is possible to change the character of the pattern completely and without re-threading by changing a few knots of the tie-up and altering the treadling to correspond. It is possible, too, to weave all the charming patterns of the old double-woven coverlets on a loom that is not too elaborate for amateur craftsmen. All in all, this is one of the most delightful things known to American weaving.

CHAPTER FIFTEEN

THE DOUBLE WEAVE, THE DOUBLE-FACE TWILL, AND THE DAMASK WEAVES

PATTERNS for the double weave, double-face twill and the damask weave when written in the short fashion are the same as patterns for summer and winter weave. The difference in working out, however, is very great. The method of threading these short drafts has already been explained—in the chapter on notation—and it remains to explain the method of tie-up and treadling for these elaborate weaves.

To produce the double weave one must have a loom of at least eight harnesses,—and on such a loom only the simplest patterns can be woven. The loom should be equipped with two warp-beams, one for the white cotton warp of the ground fabric and one for the wool warp of the pattern web. A piece of double weaving all in cotton or all in wool does not, of course, require two warp-beams.

The pattern is threaded twill-fashion, the threads being alternately cotton and wool, a thread on harness 1 of white cotton, 2 blue wool, 3 white cotton, 4 blue wool and so on.

Four harnesses are required for each block of the pattern and four treadles for each unit of the weave, as will be clear from a study of the diagrams. In weaving, the treadles as shown on the tie-up draft are woven in succession, each four shots repeated as required to "square" a block of the pattern. Two shuttles, carrying one a white thread and one a blue yarn, are thrown alternately. The thing looks more difficult than it is in practice.

For a pattern of a great many blocks a very large number of harnesses and treadles is required. This means a loom a good deal more elaborate than amateur weavers ordinarily use, and as a rule modern double weaving is

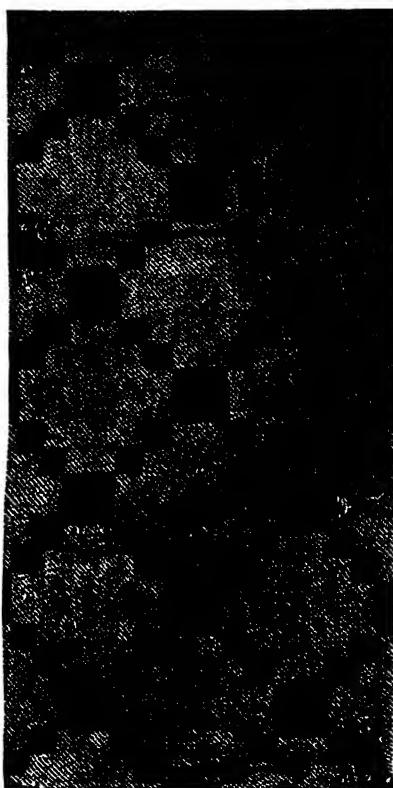


(100) Double-woven coverlet in blue and white, rose pattern.

limited to two- and three-block patterns. In the old days when a large number of harnesses was set in a loom for this weave and for damask weaving, the tie-up was not made in the usual way, but a "parrot" or other device for selecting and bringing down the desired harness had to be installed. Sometimes a "simple" and a draw-boy as on a draw-loom were used.

Double weaving has always been a thing of amazement. An old book has this to say in a footnote: "The weaving of double cloth may be applied to many useful purposes as well as to articles of curiosity. It was on the principle of double cloth that David Anderson, Damask manufacturer of Glasgow, lately wove a shirt with a fine frill, double-stitched neck, shoulder straps, and wrist bands; also gussets, buttons, button-holes, etc., with the Royal Arms emblazoned on the breast. The whole of this production was executed entirely in the loom, without the smallest aid of needle-work. The shirt was presented to His Majesty George IV, who was graciously pleased to express his high satisfaction with the ingenuity of the performance, and through the Right Hon. Lord Sidmouth, His Majesty's Secretary of State, remitted Mr. Anderson £50. Another specimen of Mr. Anderson's ingenuity in this line is deposited in the Hunterian Museum, Glasgow."

Seamless bags and tubing may be woven on four harnesses. Pillow-tops in four-harness overshot weave could be woven seamless fashion on eight harnesses and the pillow might even be woven in—"without the smallest aid of needle-work." But such "articles of curiosity" are, after all, of only passing interest.



(101) Ancient weaving in double-face twill. Draft number 178.

The double-face twill weave was used a good deal in the old days for the weaving of linen as well as for coverlets and for carpeting. It produces a very firm fabric in which the pattern consists of blocks in warp-face twill on a ground in weft-face twill. The same number of harnesses—four for each block of the patterns—is required for this weave as for double weaving, and the threading is done twill-fashion also, but the warp is all of the same material and only one warp-beam is required. The method of tie-up is shown on the above diagram; four treadles are tied for each block of the pattern and these treadles are woven in succession in repeats of four shots, as many repeats as are required in order to square the blocks.

The weave is excellent for upholstery material.

By changing the tie-up slightly, or simply by changing the order in which the treadles are used, one may weave a pattern in damask on the same threading as for the double-face twill. The damask weave is the favorite weave for fine linens.

In all these weaves the warp must be set in the reed a good deal closer than for ordinary overshot weaving, and the weft material used is usually the same as the warp.

CHAPTER SIXTEEN

NOTES ON THE DRAFTS FOR SUMMER AND WINTER WEAVE, DOUBLE WEAVING AND DOUBLE-FACE TWILL

DIAGRAM 32 (102)

No. 150-164. These patterns may be woven on four harnesses in summer and winter weave and on eight harnesses in double weave, damask weave and double-face twill. Directions for tie-up and weaving have already been given.

DIAGRAM 33 (103)

No. 165 is a small pattern suitable for upholstery. Two tie-ups are given and the front and back of the fabric for each tie-up are shown.

No. 166 tied up in the simplest way, as at (a) pattern 165, may be woven rose-fashion or as drawn in.

No. 167 is a pattern from the ancient German book of weaving patterns, brought to America before the Revolution. It is similar to pattern 209 on a later diagram. A special tie-up is required, as shown on the draft. As the pattern is illustrated, no treadling directions are required.

No. 168. The simple tie-up as at No. 165 (a) should be used and the pattern woven as drawn in.

No. 169 is also on the simple tie-up. It may be woven as drawn in, and when woven rose-fashion should be treadled as illustrated.

No. 170 and No. 171 should be woven as drawn in, on the simple tie-up.

No. 172 is likewise on the simple tie-up. When woven rose-fashion it should be treadled as illustrated.

Series VII Patterns for "Summer and Winter," Double, Double Face Twill, and Damask Weaving

Group (a) Two Block Patterns

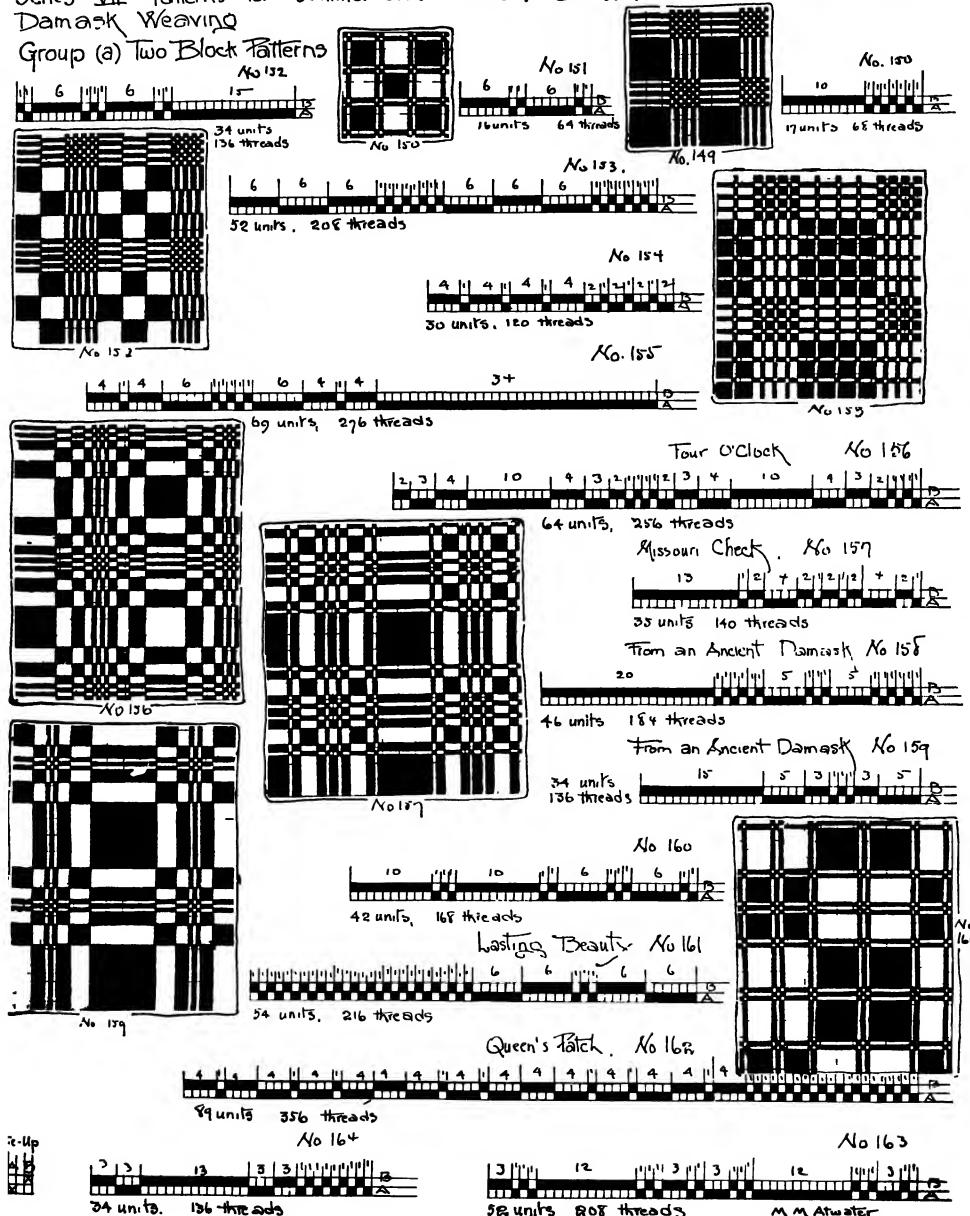
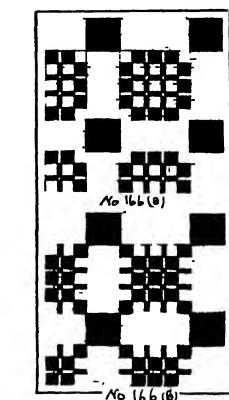


Diagram 32 (102)

Series VII

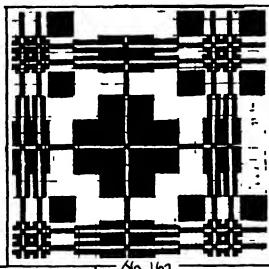
Group (b) Three-Block Patterns (b)



No. 166
Old Linen, Pennsylvania Museum

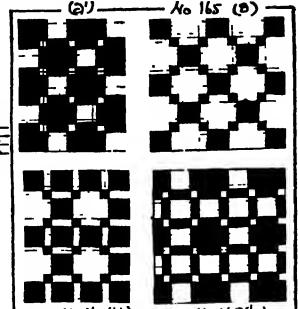
100 threads

3	3	3	3	3	8
---	---	---	---	---	---



No. 167
From an Old Book

184 threads



From a Modern Damask, No. 168

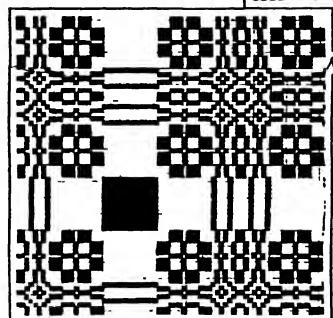
120 threads

1	1	1	3	3	9	3	3
---	---	---	---	---	---	---	---

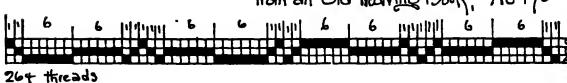
No. 169, Simple Rose Pattern from an Ancient Coverlet

212 threads

1	3	3	3	3	1	1	1	1	3	3	3	3
---	---	---	---	---	---	---	---	---	---	---	---	---



No. 169



From an Old Weaving Book, No. 170

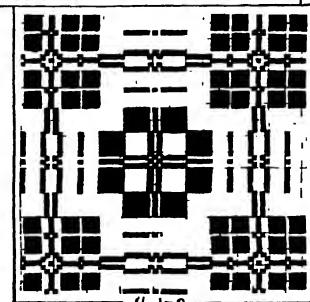


Circle and Star, No. 171

No. 172, Old Coverlet from Geneva, Illinois

264 threads

6	6	1	1	6	6	4	1	4	1	4
---	---	---	---	---	---	---	---	---	---	---

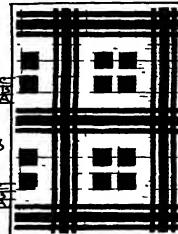


No. 172.

Cross-Bars and Squares, No. 173

96 threads

4	1	4	1	4	1	4	1	2	1	1
---	---	---	---	---	---	---	---	---	---	---



No. 174, A John Landes Pattern

200 threads

3	1	3	1	3	1	3	1	3	1	4	3	1	1	3	1	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Blooming Leaf, No. 175

21

1	1	1	2	2	8	2	3	2	1	1	1	1	3	2	2	3	2	8	1	2	1	1	1	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

368 threads

M.M. Atwater.

Diagram 33 (103)

No. 173 requires a special tie-up as indicated. It should be treadled as follows:

Block 3, 1 unit	Block 1, 4 units
1, 1 unit	2, 4 units
3, 2 units	1, 2 units
1, 1 unit	2, 4 units
3, 1 unit	1, 4 units

No. 174 should be woven as drawn in, on the simple tie-up, and so should No. 175.

DIAGRAM 34 (104)

No. 176—No. 185 are all woven on the simple tie-up and treadled as drawn in. They are simple but effective patterns, No. 181 (105). No. 182 (98), and No. 184 (106) are illustrated.

No. 185 is the draft of the coverlet shown opposite page 172 of Eliza Calvert Hall's coverlet book and No. 186 is the curious border as illustrated. It gives an effect of the Pine-Tree border so much used with more elaborate patterns. Treadle the border as follows:

Block 4, 6 units	Block 2, 1 unit
3, 1 unit	1, 20 units
2, 1 unit	2, 1 unit
1, 4 units	1, 1 unit
2, 1 unit	2, 1 unit
3, 1 unit	1, 4 units
4, 4 units	4, 12 units

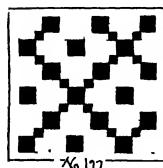
3 times 14 times

This weaves the bottom border. For the top border reverse the treadling.

No. 187 requires a special tie-up as shown on the draft. Treadling as follows

Block 1, 10 units	Block 2, 1 unit
2, 1 unit	3, 1 unit
3, 1 unit	4, 1 unit
4, 1 unit	1, 1 unit
3, 1 unit	2, 1 unit
2, 1 unit	3, 1 unit
1, 1 unit	4, 1 unit
4, 1 unit	3, 1 unit
3, 1 unit	2, 1 unit

Series VII. Group (c) Four-Block Patterns
Figures of the Diamond Order



No. 177 Diamond (b)

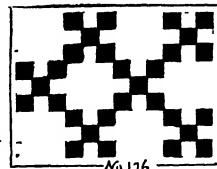
96 threads

Diamond (d) No. 179

88 threads

Diamond (a) No. 176

96 threads

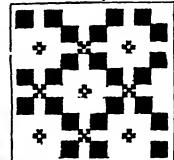


No. 176

Diamond (c) No. 178

108 threads

Tish in the Pond No. 180



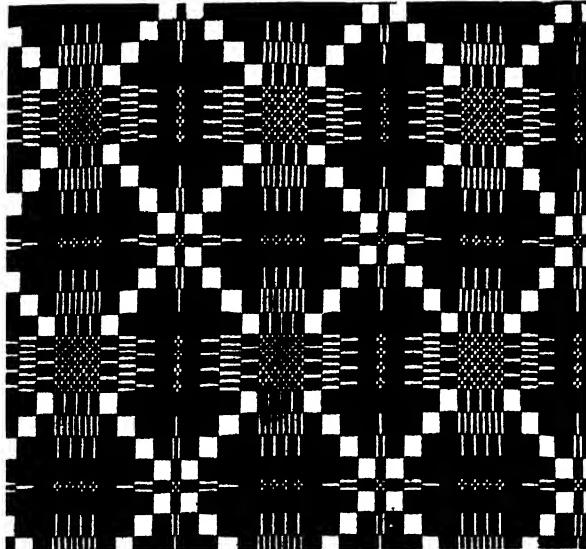
No. 174

No. 180

DIAGRAM 35 (108)

All the patterns on this diagram are made on the simple tie-up as given at the bottom of diagram 27, and are woven as drawn in. No. 188 is similar to No. 186 and may be woven with a similar border. It is like the pattern opposite page 208 of Eliza Calvert Hall's book—though this has one additional block that gives it a somewhat more elaborate effect.

No. 193 (96), No. 194 (107), No. 195 (15), and No. 196 (20) are illustrated.



(105) Cambridge Beauty. Draft number 181.

The great difference in effects is due chiefly to difference in proportion. Both are extremely handsome patterns when woven.

DIAGRAM 37 (110)

No. 203 requires a special tie-up as given with the draft and should be treadled as illustrated.

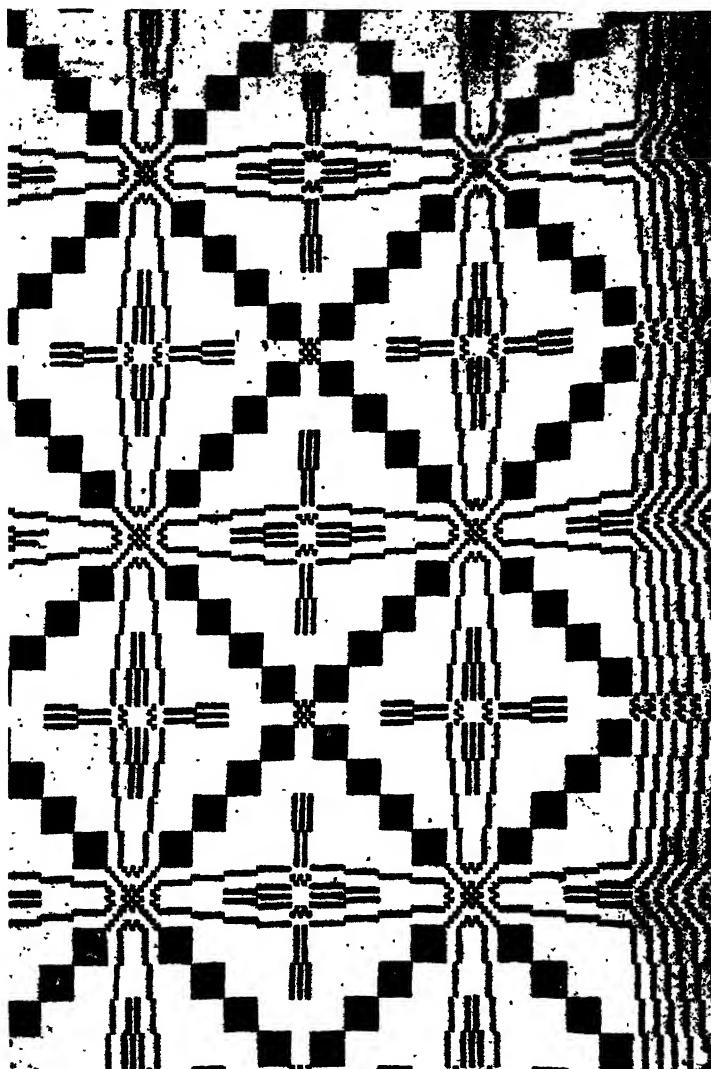
No. 204 is a dainty little pattern of stars and roses. It is woven on the simple tie-up and treadled as drawn in. Illustrated, 3 (99).

No. 205. The simple tie-up should be used and the pattern treadled as illustrated.

No. 206 is a very simple arrangement of this beautiful and much-loved old pattern. This should be woven on the simple tie-up and treadled as follows:

DIAGRAM 36 (109)

The patterns of this diagram are all woven on the simple tie-up and should be treadled as drawn in. No. 198 (51) and No. 200 5 (99) are illustrated. It is interesting to note that 201 and 202 are figures of very similar construction. The



(106) The Tuning-Fork coverlet (double weaving).
Draft number 184.

Block 2, 2 units

1, 1 unit
4, 1 unit
3, 1 unit
4, 1 unit
3, 1 unit

Small rose

Block 2, 3 units
1, 3 units
2, 1 unit
1, 3 units
2, 3 units

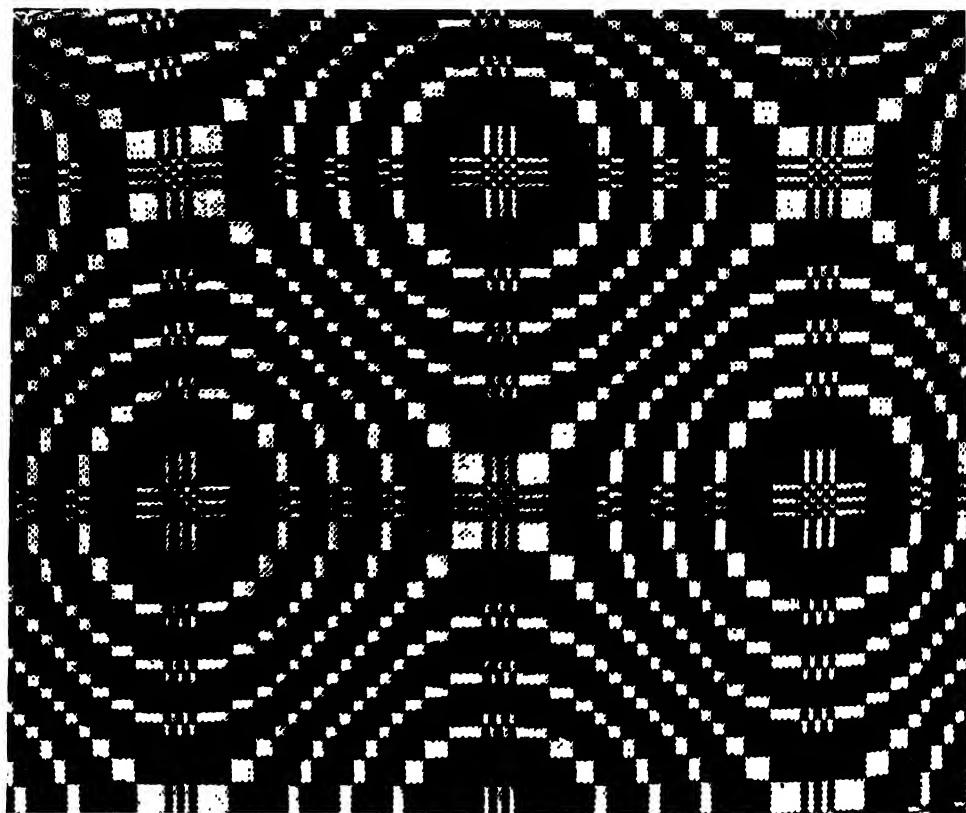
Illustrated at 1 (99).

Large rose

Block 3, 5 units
4, 5 units
3, 1 unit
4, 1 unit
3, 1 unit
4, 5 units
3, 5 units

Repeat small rose as above

Block 3, 1 unit
4, 1 unit
3, 1 unit
4, 1 unit
1, 1 unit



(107) Ancient summer and winter weave from the Newark Museum. Pattern: Wheel of Fortune. Draft number 194.

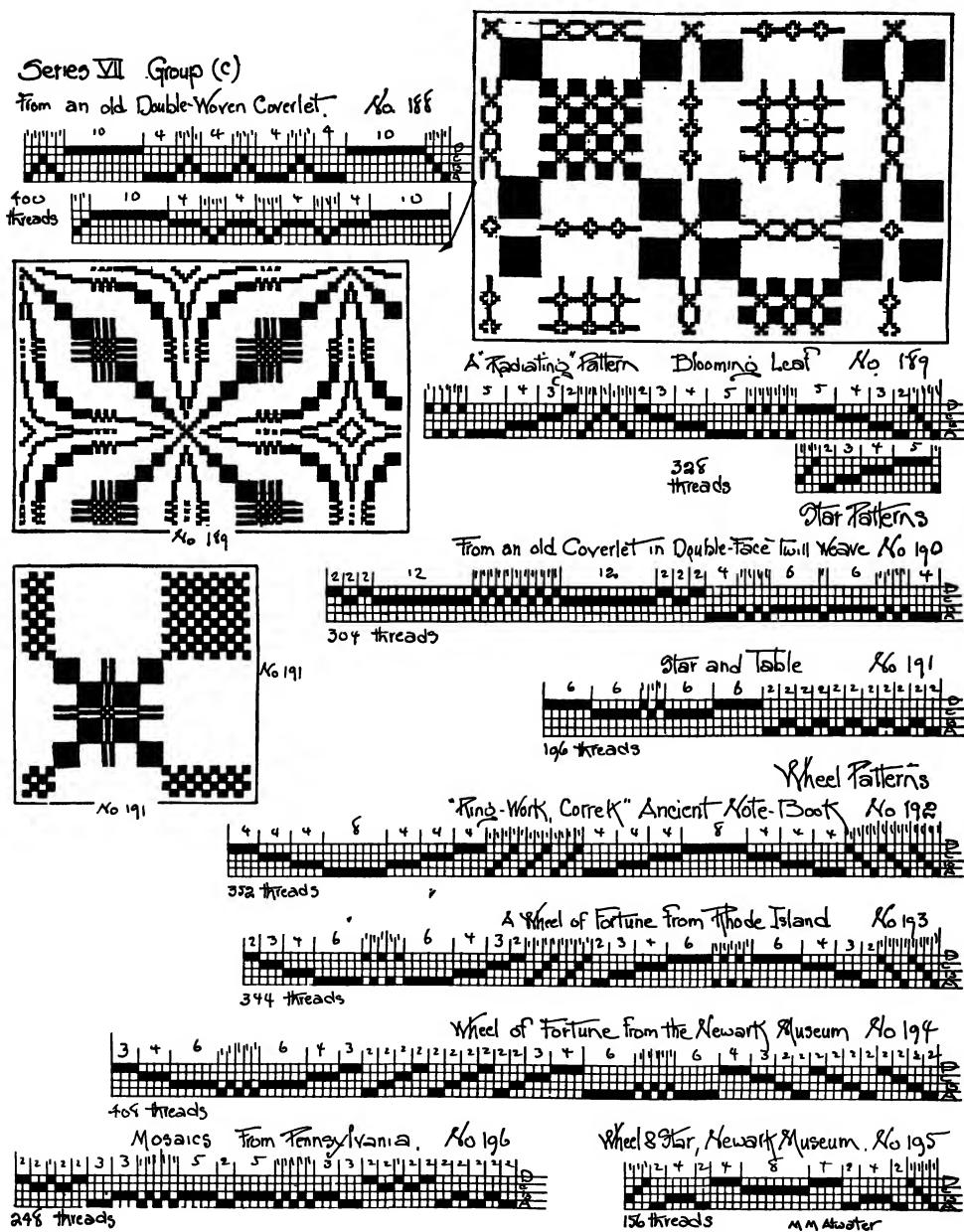


Diagram 35 (108)

No. 207. This is a pattern of the "Snow-Ball" type. It was taken from an ancient double-woven coverlet shown in the loan collection of the "Craftsmen at Work" exhibition, Boston, 1927. A special tie-up is required as indicated. Treadling as illustrated.

No. 208 also requires a special tie-up and should be treadled as illustrated.

No. 209 is a handsome old pattern illustrated at (24). A special tie-up is required, as indicated, and treadling is as follows:

Block 2, 3 units	Block 4, 1 unit
1, 6 units	1, 1 unit
2, 3 units	2, 1 unit
3, 6 units	1, 1 unit
4, 6 units	4, 1 unit
2, 1 unit	3, 1 unit
4, 6 units	4, 1 unit
3, 6 units	1, 1 unit
2, 3 units	2, 1 unit
1, 6 units	1, 1 unit
2, 3 units	4, 1 unit
3, 1 unit	3, 1 unit

Repeat twice.

DIAGRAM 38 (111)

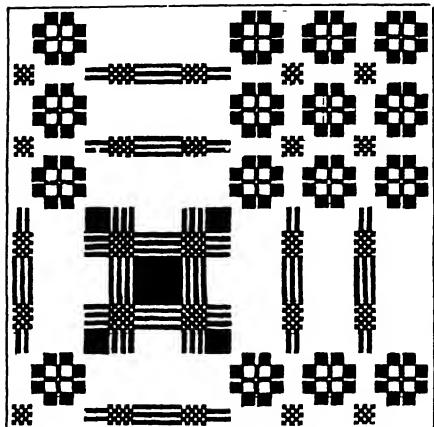
No. 210 (a). The "Snow-Ball" patterns are very many and very various—so many that it is impossible to show more than a small percentage of the number. An effort has been made to select the more interesting and the more typical examples.

The snow-ball figure as usually woven is a solid figure more or less round in form, and composed of three or more blocks. With any of these the famous "Pine-Tree" border may be woven. Occasionally a pine tree is attempted with patterns like 214 and 216 that have no three-block figure, but as a rule this is not very successful.

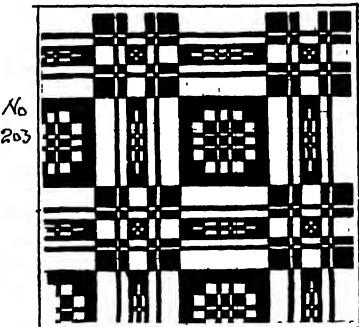
A special tie-up is always required for a pattern of this order. The one given with No. 210 (a) is the most usual, but other forms of tie-up will be noted.

No. 210 (b). This threading may be used for a "Pine-Tree" border with patterns 212, 213, 215, 217 and 218 on this diagram. The form of the tree will vary with the figure and will not appear as illustrated except when used with pattern 210 (a). When used with No. 213, for instance, the tree will have three trunks, with 215 it will appear as a group of six trees, with 217 it

Series VII Group (c) Four Block Patterns
Figures of the Rose Order



No. 205



Rose in the Shadow No 203

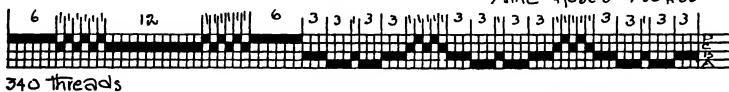
Rose in the Shadow No 203

3	3	3	1	2	1	3	3	3	5	1	2	1	1	1	2	1	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

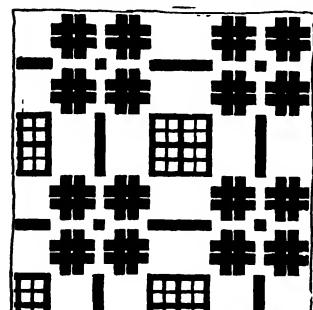
178 threads



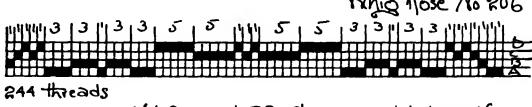
Nine Fingers 80805



Figures of the Snow Ball Order



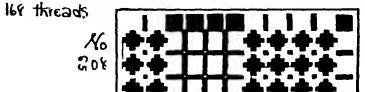
45



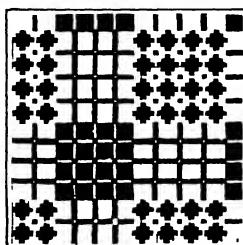
Old Coverlet, Craftsmen's Exhibition No 207



Sixteen States, ၃၀၇



The Three Flowers No. 200



Digitized by srujanika@gmail.com

Diagram 37 (110)

will be a double and single tree each with two trunks, etc., etc. For use with large figures the tree may be made taller by adding to the trunk and putting in additional branches. With small patterns it should be made smaller.

These patterns are illustrated, but as the treadling of the tree is somewhat obscure treadling directions are given below.

Treadle 210(a) :

Block	4,	8	units
	3,	4	units
	2,	4	units
	1,	4	units
	2,	2	units
	1,	4	units
	2,	4	units
	3,	4	units
	4,	8	units
	3,	1	unit
	2,	1	units
	1,	1	units
	4,	1	unit
	1,	1	unit
	4,	1	unit
	1,	1	unit
	2,	1	unit
	3,	1	unit

Treadle 210(b) :

Block	3,	4	units
	2,	1	unit
	3,	1	unit
	2,	1	unit
	1,	1	unit
	2,	1	unit
	3,	1	unit
	1,	1	unit
	2,	1	unit
	3,	16	units
	2,	2	units
	1,	2	units
	4,	1	unit
	3,	1	unit
	2,	1	unit
	1,	1	unit

} 8 times

4,	1	unit
3,	1	unit
2,	1	unit
1,	1	unit

} 3 times

No. 211. Special tie-up as noted. To be treadled as follows:

Block	3,	2	units
	4,	2	units
	3,	1	unit
	4,	2	units
	3,	2	units
	2,	5	units
	1,	5	units
	2,	1	unit
	1,	1	unit
	2,	1	unit
	1,	5	units
	2,	5	units
	3,	2	units
	4,	2	units
	3,	1	unit
	4,	2	units

Block	3,	2	units
	2,	1	unit
	1,	1	unit
	4,	1	unit
	3,	1	unit
	2,	1	unit
	1,	1	unit
	4,	1	unit
	3,	1	unit
	4,	1	unit
	1,	1	unit
	2,	1	unit
	3,	1	unit
	4,	1	unit
	1,	1	unit
	2,	1	unit

This pattern produces a large two-block snow-ball figure, with small roses and a diamond figure. "Pine-Tree" border not suitable.

No. 212 is a handsome figure similar to "Lisbon Star" illustrated elsewhere.

.Special tie-up. Treadle as follows:

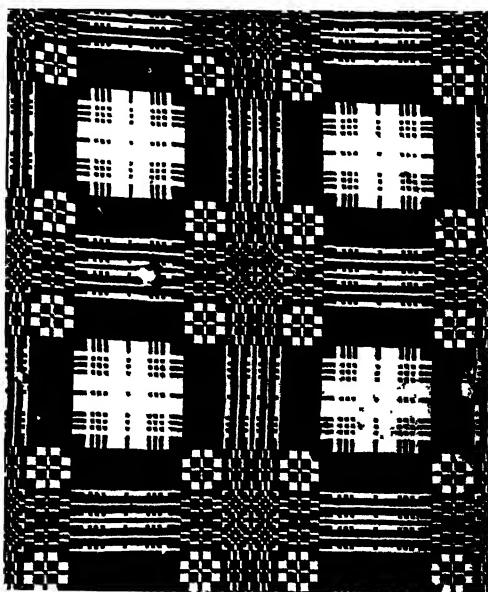
Block 3, 3 units	Block 1, 3 units
2, 3 units	2, 3 units
1, 3 units	3, 3 units
2, 1 unit	4, 6 units
3, 1 unit	1, 1 unit
2, 1 unit	2, 1 unit
1, 1 unit	3, 1 unit
2, 1 unit	2, 1 unit
3, 1 unit	1, 1 unit
2, 1 unit	4, 6 units

The "Pine-Tree" border may be used with this.

No. 213 is a small snow-ball figure. Treadle as illustrated.

No. 214. Special tie-up as for No. 211. Treadle as follows:

Block 3, 3 units	Block 4, 3 units
4, 3 units	3, 1 unit
3, 1 units	4, 3 units
4, 3 units	3, 3 units
3, 3 units	1, 1 unit
2, 4 units	2, 1 unit
1, 2 units	3, 1 unit
2, 1 unit	4, 1 unit
1, 1 unit	1, 1 unit
2, 1 unit	4, 1 unit
1, 1 unit	3, 1 unit
2, 1 unit	2, 1 unit
1, 6 units	1, 1 unit
2, 1 unit	4, 1 unit
1, 6 units	1, 1 unit
2, 1 unit	2, 1 unit
1, 1 unit	3, 1 unit
2, 1 unit	4, 1 unit
1, 1 unit	1, 1 unit
2, 1 unit	2, 1 unit
1, 2 units	3, 1 unit
2, 4 units	1, 1 unit
3, 3 units	



(112) From an ancient coverlet in double weave. Draft number 214.

Illustrated (112).

No. 215 treadle as follows:

Block 4, 10 units	Block 2, 1 unit
3, 3 units	1, 3 units
2, 3 units	2, 3 units
1, 3 units	3, 3 units
2, 1 unit	4, 10 units
3, 1 unit	3, 1 unit
2, 1 unit	2, 1 unit
1, 3 units	1, 1 unit
3, 1 unit	4, 1 unit
2, 1 unit	1, 7 units
3, 1 unit	4, 1 unit
1, 3 units	1, 1 unit
2, 1 unit	2, 1 unit
3, 1 unit	3, 1 unit

twice 4 times

See illustration (12).

No. 216 is similar to No. 211 and has the same tie-up, but is more elaborate. Treadle as follows:

Treadle 3, 3 times	Block 2, 3 units
4, 3 times	3, 3 units
3, 1 time	4, 3 units
4, 3 times	3, 1 unit
3, 3 times	4, 3 units
2, 3 times	3, 3 units
1, 6 times	2, 2 units
2, 3 times	1, 2 units
1, 1 time	4, 1 unit
2, 1 time	3, 1 unit
1, 1 time	2, 2 units
2, 1 time	1, 2 units
1, 1 time	2, 1 unit
2, 1 time	1, 2 units
1, 1 time	2, 2 units
Block 2, 1 unit	3, 1 unit
1, 1 unit	4, 1 unit
2, 3 units	1, 2 units
1, 6 units	2, 2 units

No. 217 is woven on the tie-up as given for No. 210 (a). Treadle as follows:

Block 3, 2 units	Block 4, 8 units
2, 2 units	1, 3 units
1, 2 units	4, 3 units
2, 2 units	3, 2 units
1, 2 units	2, 2 units
2, 2 units	1, 2 units
3, 4 units	2, 2 units
2, 2 units	1, 2 units
1, 2 units	2, 2 units
2, 2 units	3, 2 units
1, 2 units	4, 3 units
2, 2 units	1, 2 units
3, 2 units	4, 8 units

No. 218 and No. 219 have the same special tie-up as noted.

No. 218 treadle as follows:

Block 3, 2 units	Block 3, 2 units
2, 2 units	4, 2 units
1, 2 units	1, 2 units
2, 1 unit	4, 1 unit
1, 2 units	1, 2 units
2, 2 units	4, 2 units

No. 219 treadle as follows:

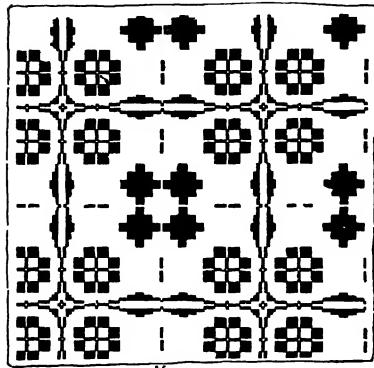
Block 3, 3 units	Block 4, 3 units
2, 3 units	1, 3 units
1, 3 units	4, 1 unit
2, 1 unit	1, 3 units
1, 3 units	4, 1 unit
2, 1 unit	1, 3 units
1, 3 units	4, 3 units
2, 3 units	3, 3 units
3, 3 units	

No. 220 special tie-up as noted; treadle as illustrated.

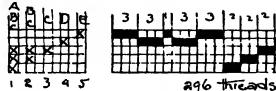
DIAGRAM 39 (113)

No. 221 and No. 222. Both these patterns are woven on the tie-up as given for 221, and should be treadled as illustrated.

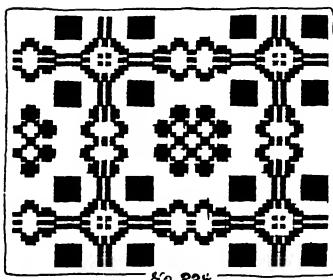
Series IV. Group (d)
Patterns of Five or More Blocks



No. 222



15
340 threads



No. 224

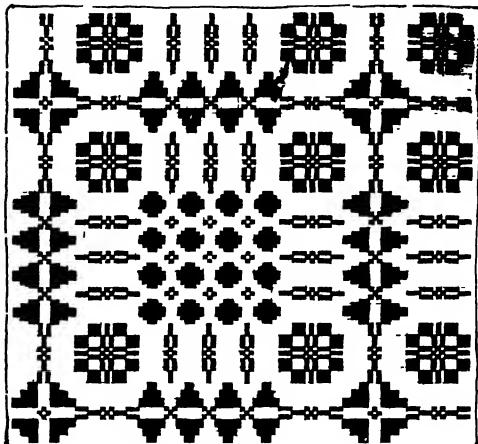


236 threads

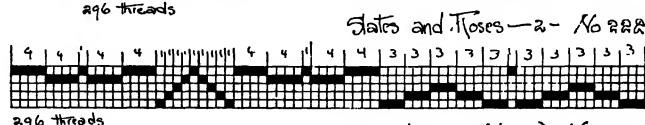
264 threads

304 threads

Diagram 39 (113)

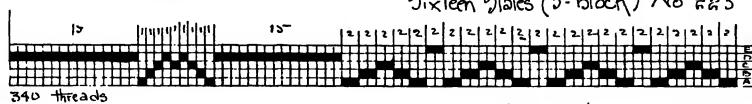


Slates and Roses.—1— No. 221

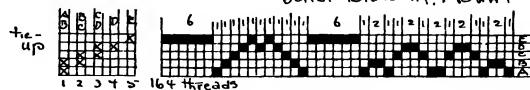


296 threads

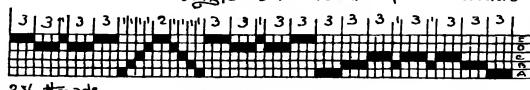
Sixteen Slates (5-block) No. 223



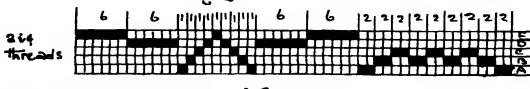
Gorrel Blossom, No. 224



Single Snow-Ball.—1— No. 225



Single Snow-Ball.—2— No. 226



M. M. Atwater

Five-Block Pine Tree Border (left-hand) No. 227

No. 223 is a handsome, serious, rather somber pattern. Tie-up as for No. 221 above. Treadle as follows:

Block 3, 2 units	Block 4, 15 units
2, 2 units	3, 1 unit
1, 2 units	2, 1 unit
2, 2 units	1, 1 unit
3, 2 units	4, 1 unit
5, 2 units	1, 1 unit
3, 2 units	4, 1 unit
2, 2 units	1, 1 unit
1, 2 units	2, 1 unit
2, 2 units	3, 1 unit
3, 2 units	4, 15 units

No. 224. Special tie-up as given; treadling as illustrated.

Pattern No. 225 is for the "Single Snow-Ball." Illustrated (30). The tie-up is the same as given for pattern No. 221 above. Treadle as follows:

Block 3, 3 units	Block 3, 1 unit
2, 3 units	2, 1 unit
1, 3 units	1, 1 unit
2, 1 unit	5, 1 unit
1, 3 units	4, 2 units
2, 1 unit	5, 1 unit
1, 3 units	1, 1 unit
2, 3 units	2, 1 unit
3, 3 units	3, 1 unit
4, 3 units	4, 3 units
5, 3 units	5, 3 units
4, 1 unit	4, 1 unit
5, 3 units	5, 3 units
4, 3 units	4, 3 units

Pattern No. 226, tie-up as for No. 221 above. Treadle as follows:

Block 3, 2 units	Block 3, 1 unit
2, 2 units	2, 1 unit
1, 2 units	1, 1 unit
2, 2 units	5, 1 unit
1, 2 units	4, 1 unit
2, 2 units	5, 1 unit
1, 2 units	1, 1 unit
2, 2 units	2, 1 unit
3, 2 units	3, 1 unit
4, 6 units	5, 6 units
5, 6 units	4, 6 units

Illustrated, 2 (99).

No. 227. This is a "Pine-Tree" border for use with five-block patterns. It is adapted for use with No. 225 and No. 226 above. A pine tree is sometimes woven with pattern No. 224, but a special draft is required. Tie-up for No. 227 is, of course, the same as for the pattern with which it is used. Treadling as follows:

Block 4, 1 unit	Block 2, 1 unit
5, 1 unit	3, 1 unit
1, 1 unit	2, 1 unit
2, 1 unit	3, 1 unit
3, 1 unit	1, 1 unit
4, 1 unit	2, 1 unit
5, 1 unit	3, 1 unit
1, 2 units	2, 1 unit
2, 2 units	3, 3 units
3, 15 units	
Repeat 4 times	
Repeat 9 times	

DIAGRAM 40 (114)

Pattern No. 228. This is a small "Snow-Ball" pattern. The "Pine-Tree" border given at 227 above is suitable for use with this pattern. A special tie-up is required and the pattern is treadled as follows:

Block 3, 2 units	Block 3, 1 unit
2, 2 units	2, 1 unit
1, 2 units	1, 1 unit
2, 1 unit	5, 1 unit
1, 2 units	4, 1 unit
2, 1 unit	5, 1 unit
1, 2 units	1, 1 unit
2, 2 units	2, 1 unit
3, 2 units	3, 1 unit
4, 1 unit	4, 1 unit
5, 1 unit	5, 1 unit
4, 1 unit	4, 1 unit
5, 1 unit	5, 1 unit
4, 1 unit	4, 1 unit

No. 229. This is one of the finest of the "Snow-Ball" patterns. The "Pine-Tree" border, No. 227, may be used with it. Treadling is not given, as it may readily be followed from the illustration.

No. 230. This is a pattern from the old German pattern book used in Pennsylvania in colonial days. A special tie-up is required, as indicated. The treadling may be followed from the illustration and is therefore not given.

No. 231. The tie-up for this pattern is the same as for No. 229. Treadle as follows:

Block 3, 2 units
 2, 2 units
 1, 2 units
 2, 1 unit
 1, 2 units
 2, 2 units
 3, 2 units
 4, 1 unit
 5, 2 units
 4, 1 unit
 3, 2 units
 2, 2 units
 1, 2 units
 2, 1 unit
 1, 2 units
 2, 2 units

Block 3, 2 units
 4, 3 units
 5, 6 units
 4, 3 units
 3, 1 unit
 2, 1 unit
 1, 1 unit
 4, 1 unit
 5, 1 unit
 4, 1 unit
 1, 1 unit
 2, 1 unit
 3, 1 unit
 4, 3 units
 5, 5 units
 4, 3 units

No. 232. The tie-up for this pattern (19) is the same as for pattern 229. It should be treadled as follows:

Block 3, 2 units
 2, 2 units
 1, 1 unit
 2, 1 unit
 1, 4 units
 2, 1 unit
 1, 1 unit
 2, 2 units
 3, 2 units
 4, 2 units
 5, 2 units
 4, 1 unit
 5, 2 units
 4, 2 units

Repeat twice.

Block 3, 2 units
 2, 2 units
 1, 2 units
 5, 1 unit
 4, 1 unit
 5, 1 unit
 1, 2 units
 2, 2 units
 3, 2 units
 4, 2 units
 5, 2 units
 4, 1 unit
 5, 2 units
 4, 2 units

No. 233. For this pattern (115) a special tie-up is required. Treadling is as follows:

Block 4, 3 units	Block 1, 1 unit
3, 3 units	2, 3 units
2, 3 units	3, 3 units
1, 1 unit	4, 3 units
2, 1 unit	5, 9 units
1, 1 unit	1, 1 unit
2, 3 units	2, 1 unit
3, 3 units	3, 1 unit
4, 3 units	4, 1 unit
3, 3 units	3, 1 unit
2, 3 units	2, 1 unit
1, 1 unit	1, 1 unit
2, 1 unit	5, 9 units

No. 234. This very handsome pattern is illustrated (14). A special tie-up is required and treadling is as follows:

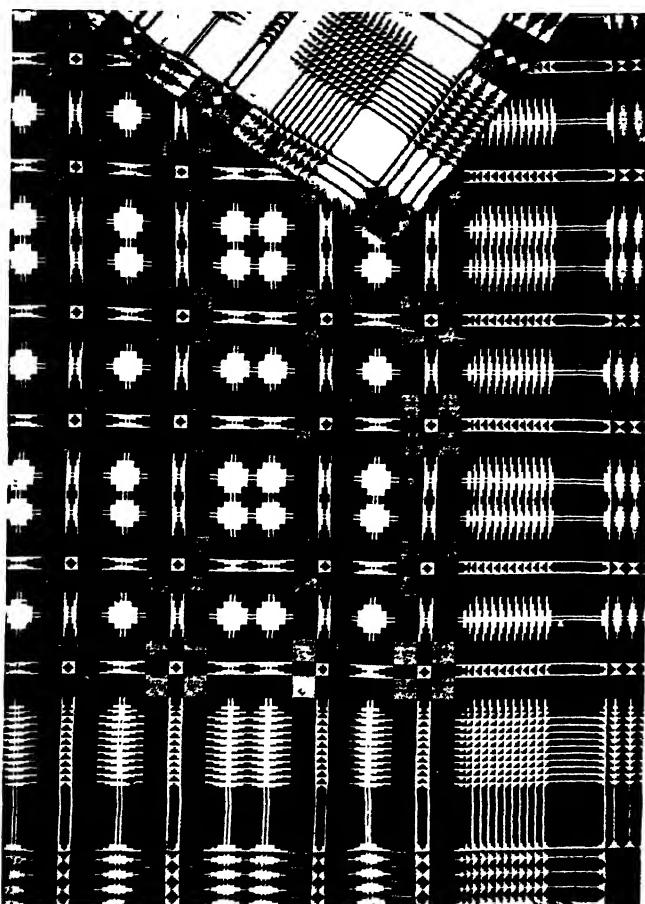
Block 3, 3 units	Block 2, 1 unit
2, 3 units	3, 1 unit
1, 2 units	4, 1 unit
2, 1 unit	5, 1 unit
1, 3 units	6, 2 units
2, 1 unit	5, 1 unit
1, 2 units	4, 1 unit
2, 3 units	3, 1 unit
3, 3 units	2, 1 unit
4, 5 units	1, 1 unit
5, 5 units	6, 5 units
6, 5 units	5, 5 units
1, 1 unit	4, 5 units

No. 235 is a very beautiful pattern. It is illustrated (1) (Frontispiece). A special tie-up is required as noted. Treadling as follows:

Block 4, 2 units	Block 3, 2 units
3, 2 units	2, 2 units
2, 2 units	1, 1 unit
1, 1 unit	2, 1 unit
2, 1 unit	1, 1 unit
1, 1 unit	2, 2 units
2, 2 units	3, 2 units
3, 2 units	4, 2 units
4, 2 units	5, 2 units

Block 6, 2 units
 5, 1 unit
 6, 2 units
 5, 2 units
 4, 1 unit
 3, 1 unit
 2, 1 unit
 1, 1 unit
 6, 1 unit
 5, 2 units

Block 6, 1 unit
 1, 1 unit
 2, 1 unit
 3, 1 unit
 4, 1 unit
 5, 2 units
 6, 2 units
 5, 1 unit
 6, 2 units
 5, 2 units



(115) An elaborate old coverlet in red, blue and white (double woven), with Pine-Tree border.
 Draft number 233.

No. 236 is another pattern from the old German book so often referred to. A special tie-up is required, as indicated. The treadling may easily be followed from the illustration and is therefore not given.

DIAGRAM 41 (116)

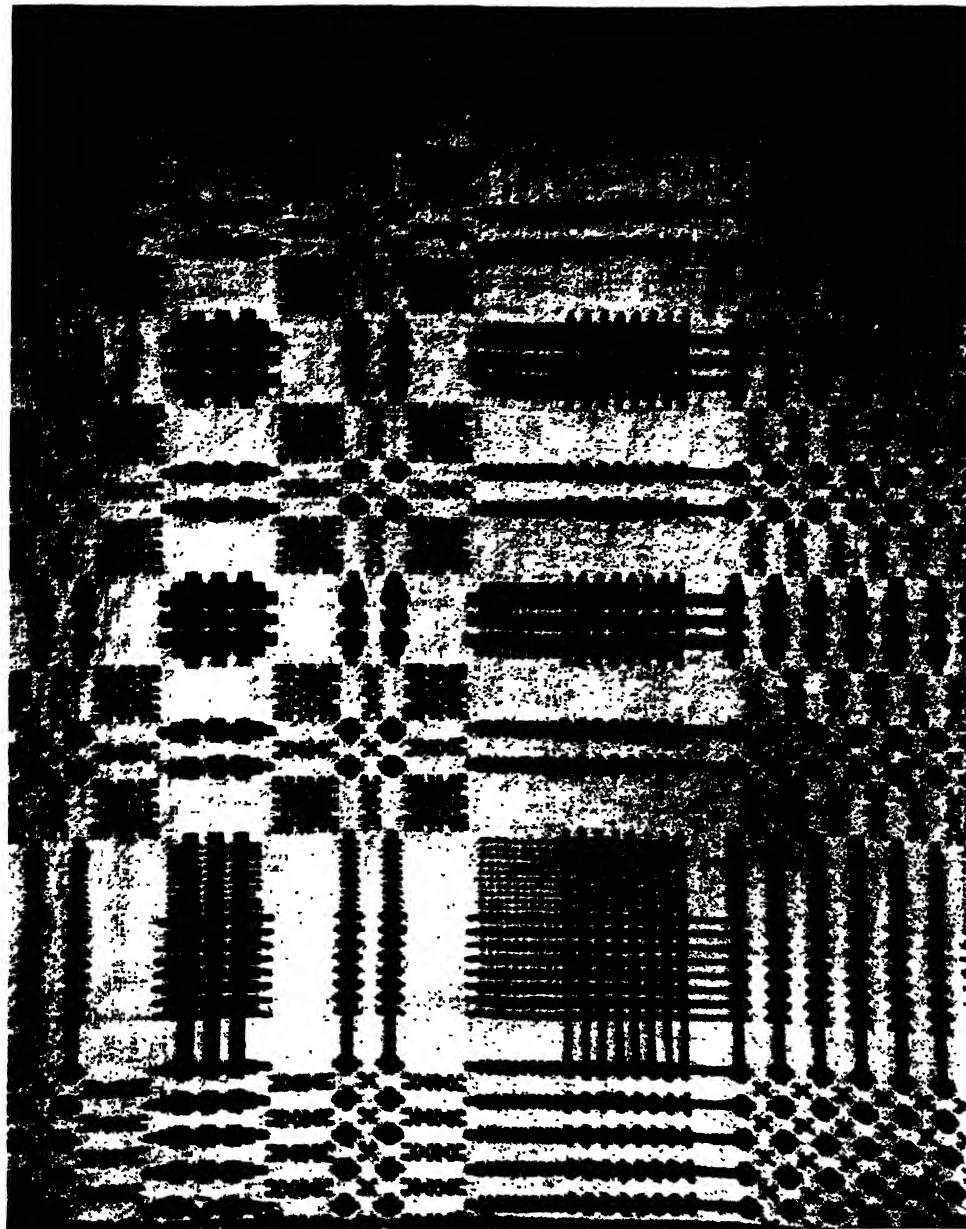
No. 237. A pattern similar to this one is illustrated (117). The usual tie-up for patterns of the "Snow-Ball" type is used. The treadling may readily be followed from the illustration.

No. 238. This is an elaborate version of the "Snow-Ball" pattern and is also similar to "Whig Rose." The same tie-up is used as for No. 237, and as the pattern is illustrated the treadling is omitted.

No. 239. The tie-up for this pattern is the same as for No. 237 above. Treadling is as follows:

Block 3, 3 units	
2, 3 units	
1, 3 units	
3, 1 unit	
2, 1 unit	
3, 1 unit	
1, 3 units	
3, 1 unit	
2, 1 unit	
3, 1 unit	
1, 3 units	
2, 3 units	
3, 3 units	
4, 2 units	
5, 2 units	
4, 1 unit	
5, 1 unit	
4, 1 unit	
5, 1 unit	
4, 1 unit	
Block 5, 2 units	
4, 2 units	
1, 2 units	
2, 2 units	
3, 2 units	
4, 1 unit	
5, 1 unit	
4, 1 unit	
3, 2 units	
2, 2 units	
1, 2 units	
4, 2 units	
5, 2 units	
4, 1 unit	
5, 1 unit	
4, 1 unit	
5, 2 units	
4, 2 units	

Pattern No. 240. This pattern has a special tie-up as noted. It should be treadled according to the illustration.

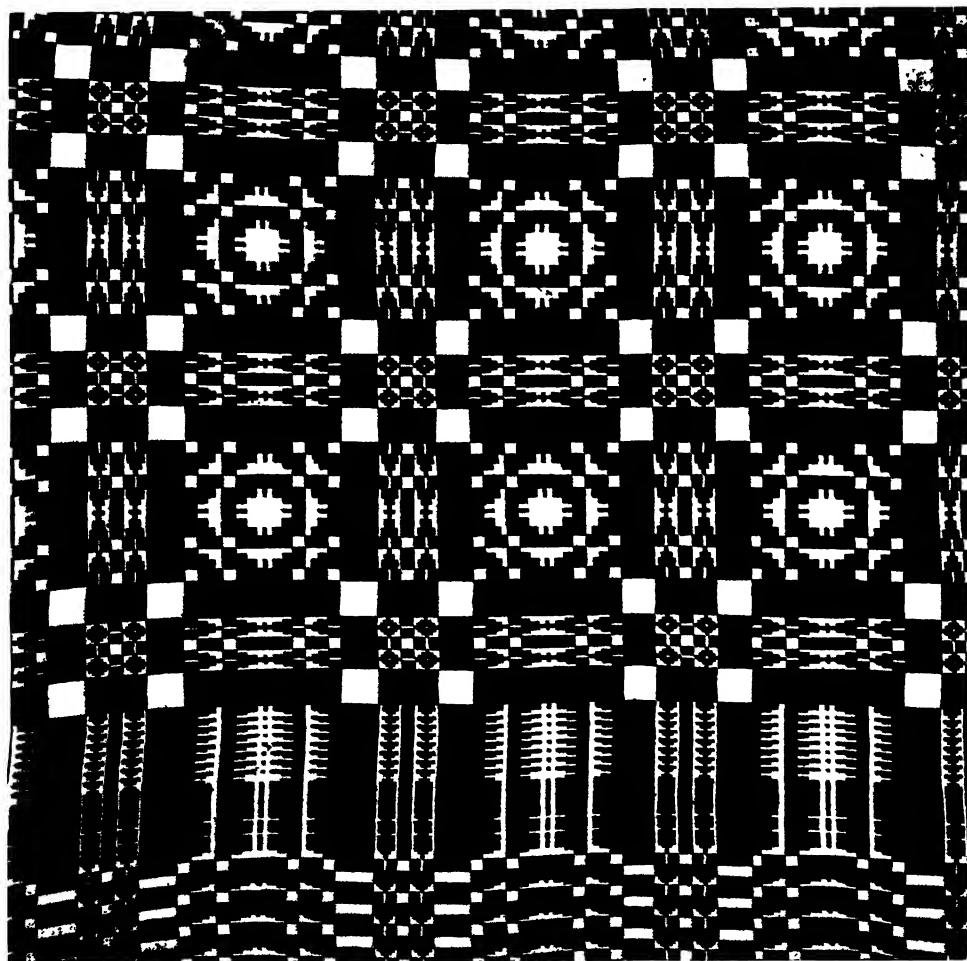


(117) Washington Beauty. Draft number 237.

Pattern 241. Similar to No. 240 but larger and more elaborate in effect.
Illustrated (118). Treadle as follows:

Block 4, 4 units
3, 3 units
2, 2 units
1, 2 units
4, 4 units
3, 3 units

Block 2, 3 units
1, 2 units
2, 1 unit
1, 2 units
2, 3 units
3, 3 units



(118) Bird's Nest with Pine-Tree border. Draft number 241.

Block 4, 4 units	Block 2, 1 unit
1, 2 units	1, 1 unit
2, 2 units	4, 4 units
3, 3 units	1, 1 unit
4, 4 units	2, 1 unit
5, 12 units	3, 1 unit
1, 1 unit	4, 1 unit
2, 1 unit	3, 1 unit
3, 1 unit	2, 1 unit
4, 1 unit	1, 1 unit
3, 1 unit	5, 12 units

Pattern 242. Special tie-up as given. Treadle as follows:

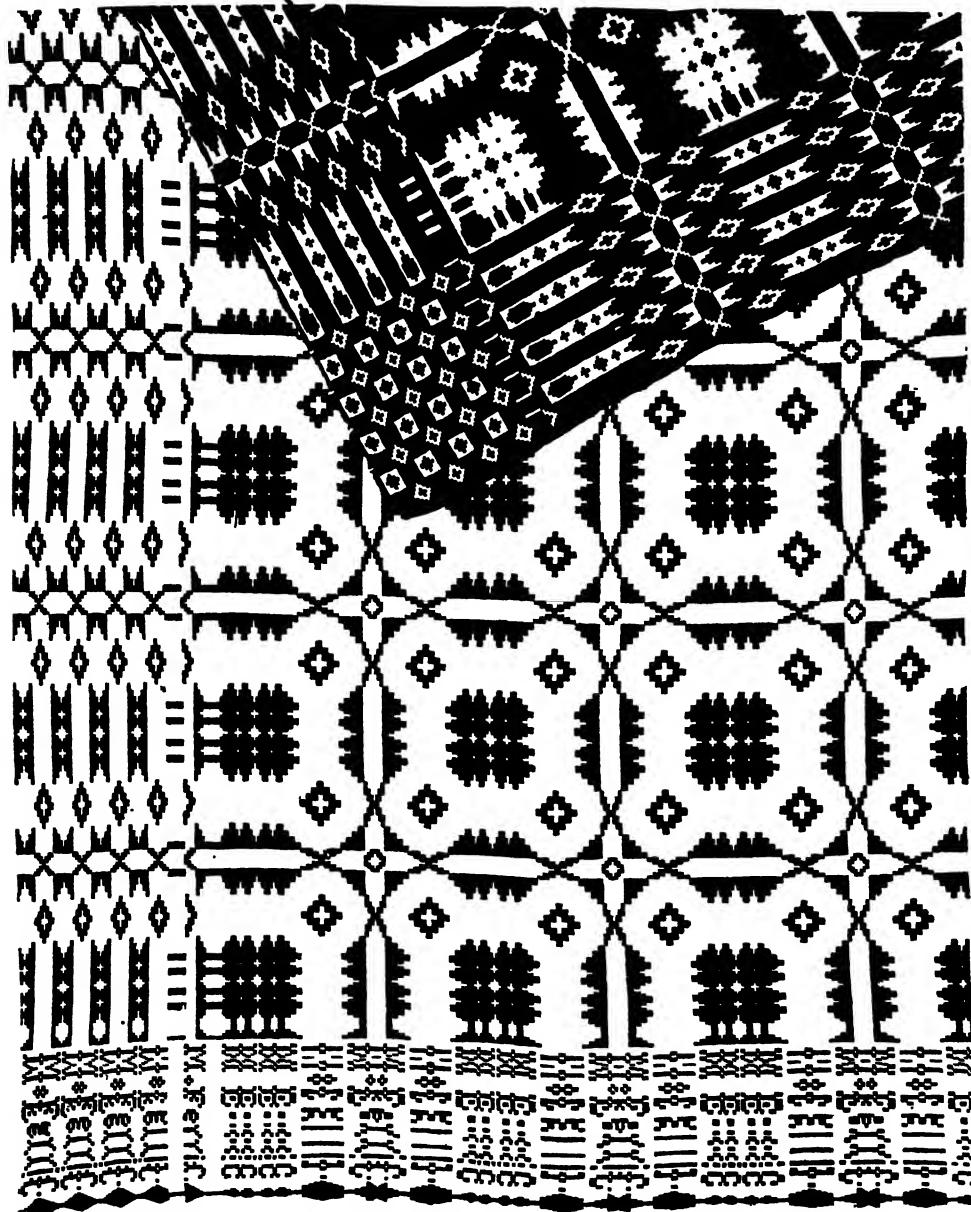
Block 3, 3 units	Block 4, 2 units
2, 3 units	5, 2 units
1, 1 unit	6, 2 units
2, 1 unit	5, 2 units
1, 3 units	4, 2 units
2, 1 unit	
3, 2 units	2, 2 units
2, 1 unit	3, 2 units
1, 3 units	2, 2 units
2, 1 unit	
1, 1 unit	4, 2 units
2, 3 units	5, 2 units
3, 3 units	6, 2 units
	5, 2 units
	4, 2 units

No. 243. This is a valuable small pattern that may be woven in many different ways. For the tie-up as given the following treadling is suggested:

Block 3, 2 units	Block 2, 2 units
2, 2 units	3, 2 units
1, 2 units	4, 2 units
4, 1 unit	1, 1 unit
1, 2 units	4, 2 units

DIAGRAM 42 (119)

The interesting patterns on this diagram are all illustrated, so that treadling directions are unnecessary. No. 244 is charming for linens, Nos. 246 and 247 for linens and also particularly good for upholstery and drapery fabrics. No. 248 (a) requires ten harnesses in the summer and winter weave, but if



(120) The "M. Ferris" coverlet—elaborate double weaving, from Pennsylvania.
See draft numbers 249 and 250.

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arranged as at No. 248 (b) with a large plain square in place of the "embosomed" figure, may be woven on eight harnesses. This plain square may be woven either solid or in blank as preferred.

No. 249 is an elaborate figure interesting chiefly for the ingenious manner in which a name has been woven into the border at one end of the old coverlet. The name, it will be observed, appears clearly in one place only. The name is woven on seven blocks of the eight on which the pattern is designed and is woven at a place where these seven blocks follow each other in succession between two large squares on the missing block—the A block in this case. The name is produced by opening special sheds, as indicated on the diagram. Any name or set of initials may be woven in this manner on a pattern of a sufficient number of blocks.

CHAPTER SEVENTEEN

THE LINEN WEAVES

OF all the old textiles none have more charm than the old linens, soft, lustrous, cool and firm—sometimes sober and heavy, in the plain weave, often gayly patterned all over with simple or intricate little patterns,—they are indeed lovely. Why are not modern linens as beautiful?

For one thing, time improves linen as it does violins and certain beverages—makes it softer and more mellow. Linen, like some upright and conscientious persons, is inclined to harshness and stiffness in youth, and nothing but time spent in useful service will bring out the best in either.

The weaver knows that linen on the loom is not attractive. It is stiff and unfriendly till it has been severely washed and ironed, and it does not become really beautiful till after repeated washings. This is one of the reasons why, as a rule, linen is best by itself—not used in combination with other materials that require less finishing.

A linen warp is difficult because it has no elasticity. According to the old books linen was usually woven wet, which makes it less stiff, to be sure, but rusts heddles and reed, and spoils shuttles. Modern hand-weavers prefer to weave it dry, or but lightly dampened.

Some of the old linens are exceedingly fine and close—not as close as the almost incredibly fine ancient Egyptian linen, to be sure, that has hundreds of gossamerlike threads to the inch and is finer than anything woven to-day—but fine by modern standards. Forty-eight to sixty threads to the inch are quite common for such things as towels. These were woven from 24" to 30" wide and about a yard long, usually finished with fine hems, and provided with loops of tape by which they could be hung on a nail without danger of tearing. Often marked with initials and a date in tiny cross-stitch.

When we think of linen we think of damask, and this is without doubt one of the most beautiful weaves in this material. Much exquisite old hand-woven damask is still to be found, and appears to belong to the rich middle period of American weaving. Two-block and three-block patterns are the rule, indicating the limits of the looms on which they were woven. Modern damask, of course, is of Jacquard manufacture.

In structure damask is a satin weave—the pattern is brought out by weaving the figures in a weft-face satin or satinette on a ground of warp-face satin. To do this it is necessary to have at least four harnesses for each block of the

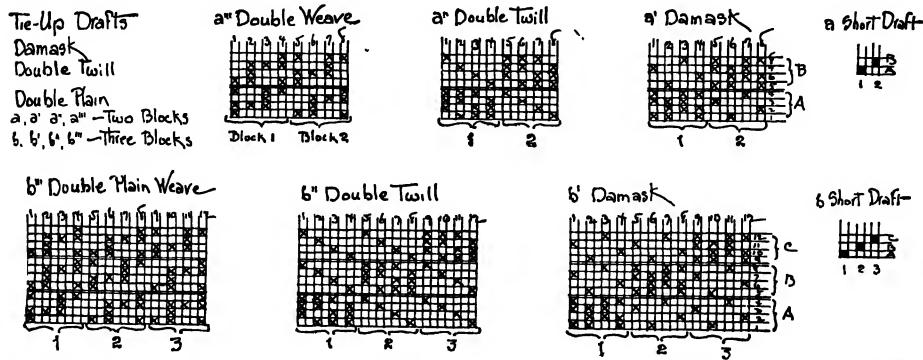


Diagram 43 (121)

pattern,—and a richer satin results from using five or even more harnesses for each block. The weave, therefore, even in its simplest form, is beyond the reach of a weaver who uses a loom of four harnesses only.

The weaves chiefly in use for linen in the more ancient times, however, were simple four-harness weaves, and many of these are charming. As a rule linen was not made in the overshot weave, and indeed there are many weaves better adapted to the character of the material. Linen threads do not cling together as cotton and woolen yarns do, and when lying on the surface of the fabric in long skips have a stringy appearance. The Scandinavian books call linen woven in overshot "poor man's damask"—and "poor" is certainly the effect.

The most prominent of the weaves used in the old days for linen weaving

of the simpler sort are "Goose-eye" and its many variations, "Huck," "Ms and Os" in its hundreds of patterns, and an interesting little weave called in many old drafts the "Diaper" weave—"Rose and Compass Diaper," "Double Compass Diaper," and so on. This weave is so prominently shown in the Bronsons' much quoted treatise that modern weavers often speak of it as the "Bronson" weave.

The old linen patterns may at one time all have had individual names as did the coverlet patterns, but the greatest confusion exists and it is safer to group them under the name of the weave to which they belong, even though "Rain Drops," "Crazy Eliza," and the few names that have also survived are interesting.

"Herring-Bone" and "Goose-Eye" are different treadlings on the same threading. This is an excellent fine, close weave for simple effects, and can be varied in a number of ways. Warp should be set somewhat closer than for the plain tabby weave, and the work should be firmly beaten up. Only one shuttle is used in weaving and no tabby is required.

"Ms and Os" in its simplest form produces a fine little all-over figure, used chiefly for plain toweling. Some of the larger patterns give rich and beautiful effects, handsome for table runners, lunch cloths and doilies and the more elaborate toweling. A number of threadings follow. In this weave no tabby is used, the weaving being done with one shuttle. The warp should be set close and the work well beaten up, and as a rule the weft should be the same thread as the warp, or a thread of similar grist.

A study of the drafts will show that the weave is very simple in construction, two pairs of "opposite" blocks being used to form the figures. The first figure of the simplest pattern is written 1, 2, 1, 2, 3, 4, 3, 4, and is woven, treadle 1, treadle 3, 1, 3, and so on for eight shots. These shots skip over and under the threads of the block and tabby across the second figure—which is threaded: 1, 3, 1, 3, 2, 4, 2, 4, and should be woven treadles A, B, A, B, repeated for eight shots. These shots of the second figure, of course, tabby across the first figure. It is amazing to find what varied and beautiful and elaborate effects are possible with this exceedingly simple technique.

The "huck" threading is similar except that there are five threads instead of four under each half of the blocks, and the treadling is different. This, too,

can be elaborated into a wide variety of patterns, and will be mentioned later in connection with its use in white counterpanes.

No true tabby can be woven on either this or the Ms and Os weave, though by using the 1&4 and 2&3 sheds an interesting simply unpatterned fabric can be made.

The foregoing weaves are all common to many ages and many lands, and are not peculiar to the American art.

The name "Diaper" as applied to patterns means simply any small all-over repeating figure, and to use the term for a special weave is misleading. It is, perhaps, advisable to use the modern convention and call it by the name of the distinguished authors of the priceless "Assistant,"—for here, as far as can be discovered, it makes its only American appearance in print.

For some reason hard to fathom, the Bronson weave was usually written for five harnesses, though some of the patterns are for eight or more harnesses. Many weavers have been led to believe that the weave could not be made on four harnesses; this, however, is not the case, and a number of excellent four-harness drafts will be found on Diagram 37: 

A study of the drafts will make the structure of the weave plain. Every other thread is threaded through the front harness, so that this harness carries half the threads of the entire warp, the remaining threads being threaded through the pattern harnesses according to the pattern.

For plain weaving one tabby treadle brings down the front harness alone while the other brings down all the other harnesses, no matter how many there may be. This very unbalanced method of operating the loom is troublesome at times if the loom is of the ordinary counterbalanced type with the harnesses hung over rollers or pulleys. The best type of loom for this weaving is the kind equipped with "jacks" instead of rollers, and it is this type of loom that the Bronsons indicate by their tie-up directions, "Ten short cords to the short lamms and ten long cords to the long lamms," etc. The weave is, however, entirely practicable on a loom of the ordinary counterbalanced type if no more than four or five harnesses are employed.

One shuttle only is used,—carrying thread of the same count or grist as the warp,—and the warp should be so set in the reed and the weft so woven that there is exactly the same number of weft picks to the inch as there is

of warp ends. A little experiment is sometimes required to get this adjustment for the fabric desired,—whether to be loosely or closely woven.

As a rule, the old pieces in this weave are of fine threads set close in the reed and well beaten up.

Weaving is done by bringing down for the weft-skips the front harness that carries half the threads together with one or another of the harnesses that carry the pattern threads. The return shot—the tabby—is woven each time by bringing down what is shown on the tie-up draft as the "B" tabby, that is to say, the tabby treadle that depresses all the pattern harnesses together.

This weave, though handsome in effect, has some rather serious structural drawbacks. As the warp-skips come on one side and the weft-skips on the other side of the same block it is plain that the fabric is greatly weakened over these blocks. Large blocks are therefore a mistake. As a rule, no more than five threads are written under a block. Old pieces are often worn into rows of holes where the pattern blocks should be, showing clearly the structural weakness of the weave.

There are, however, some very special advantages in this weave. It offers a simple and useful way to weave little detached dots or figures against a tabby background—a thing often desired, and impossible to accomplish in the ordinary overshot weave. It may also be used for many different purposes and may be woven in many different materials with treadlings different from the classic method noted above.

For instance, it is excellent for upholstery. For this use it is, however, woven as a rule with two shuttles, one carrying a fairly heavy pattern weft and one a fine tabby weft as in overshot weaving,—both tabby sheds being used. This makes a strong fabric but a distinctly one-sided fabric, as the pattern thread shows almost entirely on the surface and the backing is nondescript. This fabric is excellent for bags, pillow-tops, and many uses where the wrong side will never be in evidence, but is unsuited to linens, curtains and similar products.

There are many other small weaves used for linen,—little weaves that can hardly be classed as patterns, forming no figure but simply serving to break up agreeably the surface of the fabric. Except for the "huck" threading men-

tioned above very few of these appear among colonial American linens, and they are in modern practice usually to be traced to Scandinavian sources.

It is interesting to note that the weaves classed as linen weaves are also suitable for all-wool fabrics—blankets, scarfs, shawls, coat-material and dress material. The Bronson weave is not as often used in this way as the Ms and Os with its many variations—perhaps because the Bronson weave is less generally understood, and perhaps because of the inherent weakness of a fabric so woven. However, the Bronson weave is very charming if used correctly and can be used to good effect, especially if woven with a double tabby as noted above. Also if woven exactly as in linen weaving—warp and weft alike and the same tabby shot between pattern shots—it is a delightful weave for baby-blankets and couch-blankets.

An interesting, though not beautiful, old blanket in the Metropolitan Museum at New York is woven of heavy wool yarns arranged in a large plaid effect in colors, and is woven in a simple little linen weave. The basket weaves and the honeycomb weave are properly linen weaves also, though found perhaps oftener in wool or cotton than in linen at the present time.

The chief characteristic of all the linen weaves is the fact that they are intended to be produced of the same or similar threads in warp and weft, the pattern effect depending on texture rather than on color, though color may also be introduced.

CHAPTER EIGHTEEN

NOTES ON THE LINEN WEAVES

DIAGRAM 44 (122)

No. 251 may be woven on an ordinary six-treadle tie-up, or a special tie-up may be made, omitting treadles 2 and 4 of the ordinary tie-up. There is no true tabby in this threading, but treadles 2 and 4 of the ordinary tie-up give a small weave not far removed from plain weaving.

No. 252. Treadle this pattern as follows:

Treadle the first figure:

Treadle 1, once; treadle 3, once, alternately for eight shots.

Treadle the second figure:

Treadle 5, once; treadle 6, once, alternately for eight shots.

Treadle 5, once; treadle 6, once. Repeat for eight shots.

1, once; treadle 3, once. Repeat for eight shots.

5, once; treadle 6, once. Repeat for eight shots.

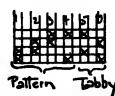
1, once; treadle 3, once. Repeat for thirty-four shots.

No. 253 treadle as follows:

Treadle 5, once}	8 shots	Treadle 1, once
6, once}		2, once
1, once}	8 shots	3, twice
3, once}		2, once
5, once}	8 shots	1, once
6, once}		4, once
1, once}	8 shots	3, once
3, once}		2, once
5, once}	8 shots	1, once
6, once}		4, once
1, once}		3, once
2, once}	6 times	2, once
3, once}		1, once
4, once}		

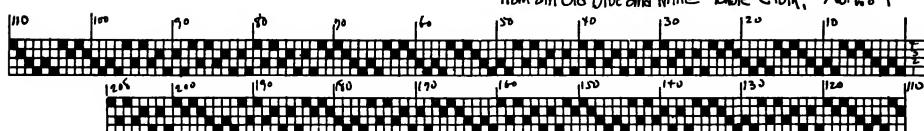
Series VIII. Weaves Used Chiefly for Linens

Group (a) Patterns of the "Ms and Os" Type



Ms and Os No. 252

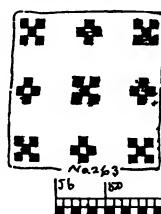
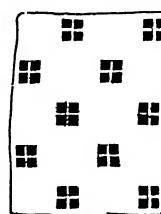
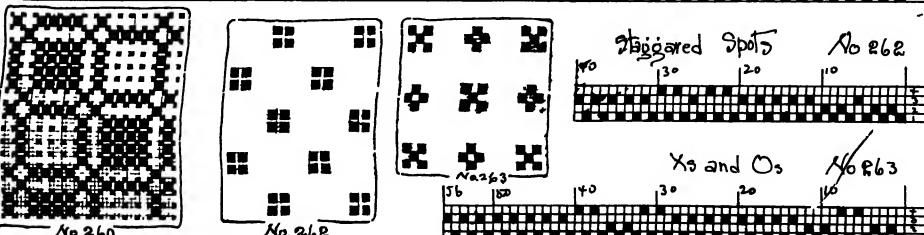
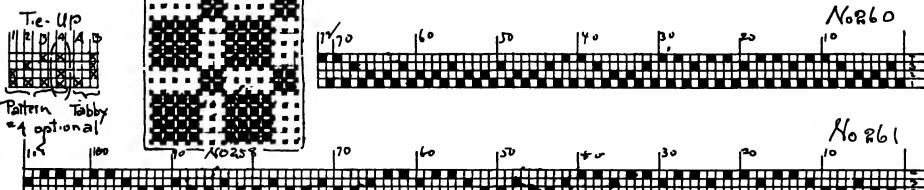
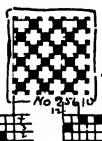
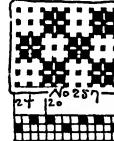
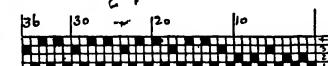
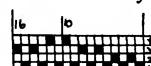
Ms & Os No. 851



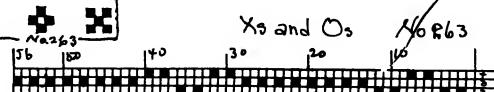
Twill and Dam-Board No. 255



Group (b), the Diaper, or Bronson Weave—Four-Harness
Diamond No. 259



No. 261



M. M. Atwater

Diagram 44 (122)

No. 254 treadle as follows:

Treadle 1, once} 24 or more shots
 3, once}
 5, once} 24 or more shots
 6, once}
 1, once} 24 or more shots
 3, once}
 5, once} 24 or more shots
 6, once}
 1, once} 24 or more shots
 3, once}

Treadle 5, once} 8 times
 6, once}
 1, once} 8 times } 5 times
 3, once}
 5, once} 8 times
 6, once}

No. 255 treadle as follows. No tabby.

Treadle 2, once} 5 shots
 1, once} 5 shots } 3 times
 3, once} 5 shots
 4, once}
 2, once} 5 shots
 1, once}
 8, once}
 7, once} 7 times
 6, once}
 5, once}
 6, once}
 7, once}

 8, once} 6 times
 5, once}
 6, once}
 7, once}

No. 256 simple Diamond. Treadle as follows:

Treadle 1, twice
 2, once
 3, twice
 2, once

Using tabby A between pattern shots. (Tabby B not used.)

No. 257 treadle as follows:

Treadle 1, twice	
2, once	
1, twice	
2, once	
3, twice	
2, once	
3, twice	
2, once.	Tabby A as above.

No. 258 treadle as follows:

Treadle 1, twice	
2, once	
1, twice	
2, once	
3, twice	
2, once	
3, twice	
2, once	
3, twice	
2, once	
3, twice	
2, once.	Tabby A as above.

No. 259 woven as drawn in.

Treadle 1, twice	
2, twice	
3, twice	
2, twice.	Tabby A as above.

No. 260 woven as drawn in, as illustrated. Tabby A as above.

No. 261 may be woven as drawn in or may be treadled as follows:

Treadle 1, once	Treadle 3, once
B, once	B, once
1, once	3, once
B, once	B, once
A, once	A, once
B, once	B, once

No. 262 is an arrangement for the weaving of small spots separated by plain spaces. The treadling is as follows:

Treadle 1, once
 A, once
 1, once
 B, once
 A, once
 B, once
 1, once
 B, once
 1, once
 B, once
 A, once} Repeat for 10 shots
 B, once}
 3, once
 B, once
 3, once
 B, once
 A, once
 B, once
 3, once
 B, once
 3, once
 B, once
 A, once} Repeat for 10 shots
 B, once}

No. 263 is an arrangement similar to 262. The system of treadling is the same except that the spots are woven:

Treadle 1, twice. Tabby B between shots.
 3, twice
 1, twice
 and
 3, twice
 1, twice
 3, twice, respectively. Plain park, as above.

DIAGRAM 45 (123)

No. 264 is a pattern from the Bronson book.

No. 265. A similar pattern.

No. 266, from old notebook in the Pennsylvania Museum.

No 267, from the Bronson book.

Series VIII. Group (c)

Five, Six, Seven and Eight Harness Bronson Weave Patterns

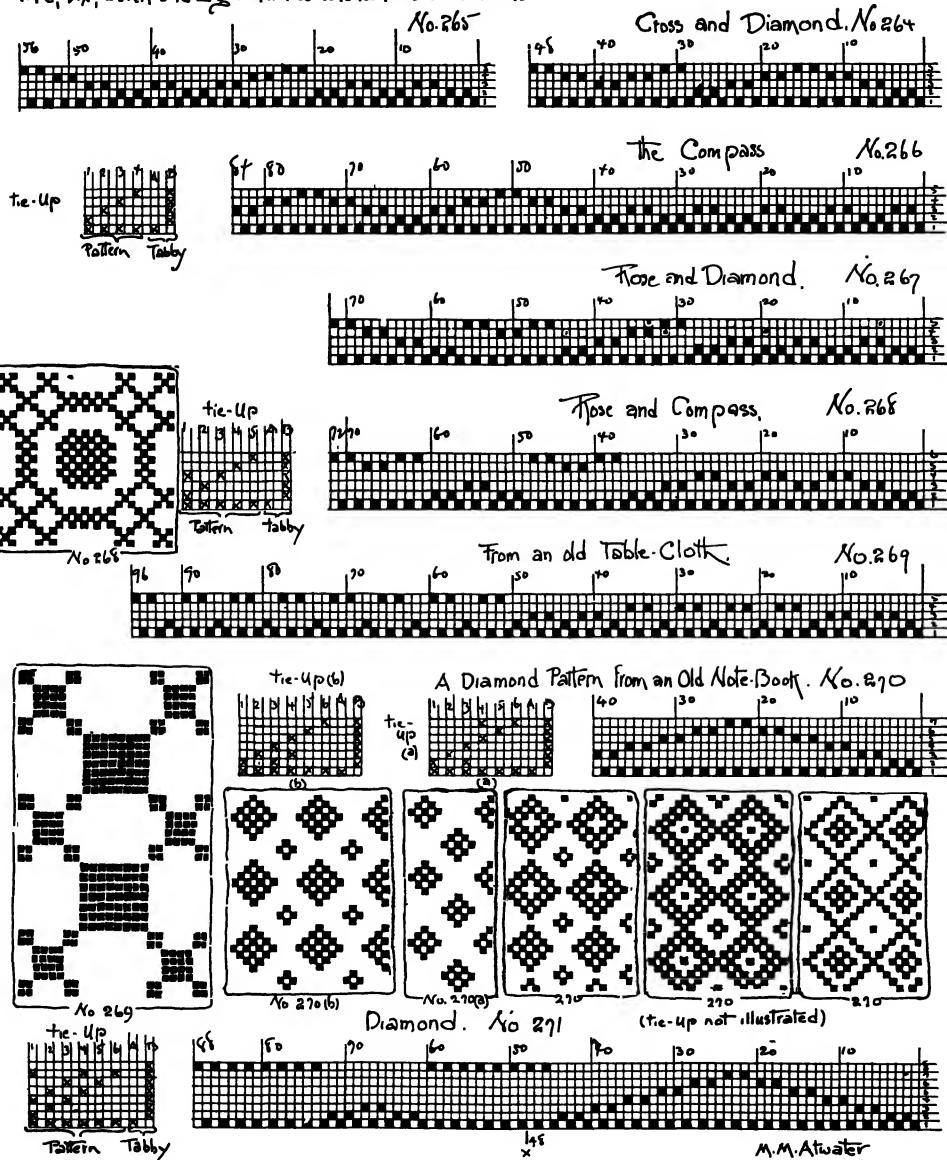


Diagram 45 (123)

All these patterns are woven as drawn in on the tie-up given at No. 266.

No. 268 is from the Bronson book, on special tie-up. Treadle as follows:

Treadle	5, 2 times
	4, 2 times
	5, 2 times
	1, 2 times
	2, 2 times
	1, 2 times
	5, 2 times
	4, 2 times
	5, 2 times
	3, 2 times
	2, 2 times
	1, 2 times
	2, 2 times
	1, 2 times
	2, 2 times
	1, 2 times
	2, 2 times
	3, 2 times

Tabby B throughout.

No. 269 is an interesting pattern of construction similar to the group Nos. 256 to 261; the small connective blocks on 1-2, are, however, not woven, an A tabby shot being put in instead.

It is, of course, entirely proper to weave these blocks if the effect is preferred. The tie-up is like No. 266, though treadle 1 may be omitted as it is not used in weaving.

Any three-block pattern may be arranged for weaving in this fashion, and the effect is particularly charming—impossible to show on the diagram.

No. 270 is a simple “point” threading in the Bronson weave and can be woven in countless ways. Five simple ways are illustrated. Each requires a separate tie-up, but only two of these tie-ups are shown. They sufficiently illustrate the method.

Treadling in each case is from treadle 1 to treadle 6 and back to 1, each pattern treadle woven twice, tabby B throughout.

No. 271 is a diamond pattern arranged with spaces of plain weaving between patterns. These spaces are threaded on the eighth harness and no tie-up for this harness is necessary except the B, tabby. The diamond is woven by treadling from treadle 6 to treadle 1 and back to 6. The plain spaces are

woven using the two-tabby treadles and the small figure between plain squares is woven:

Treadle 6, twice

5, twice

6, twice, followed by another plain square.

CHAPTER NINETEEN

COUNTERPANES

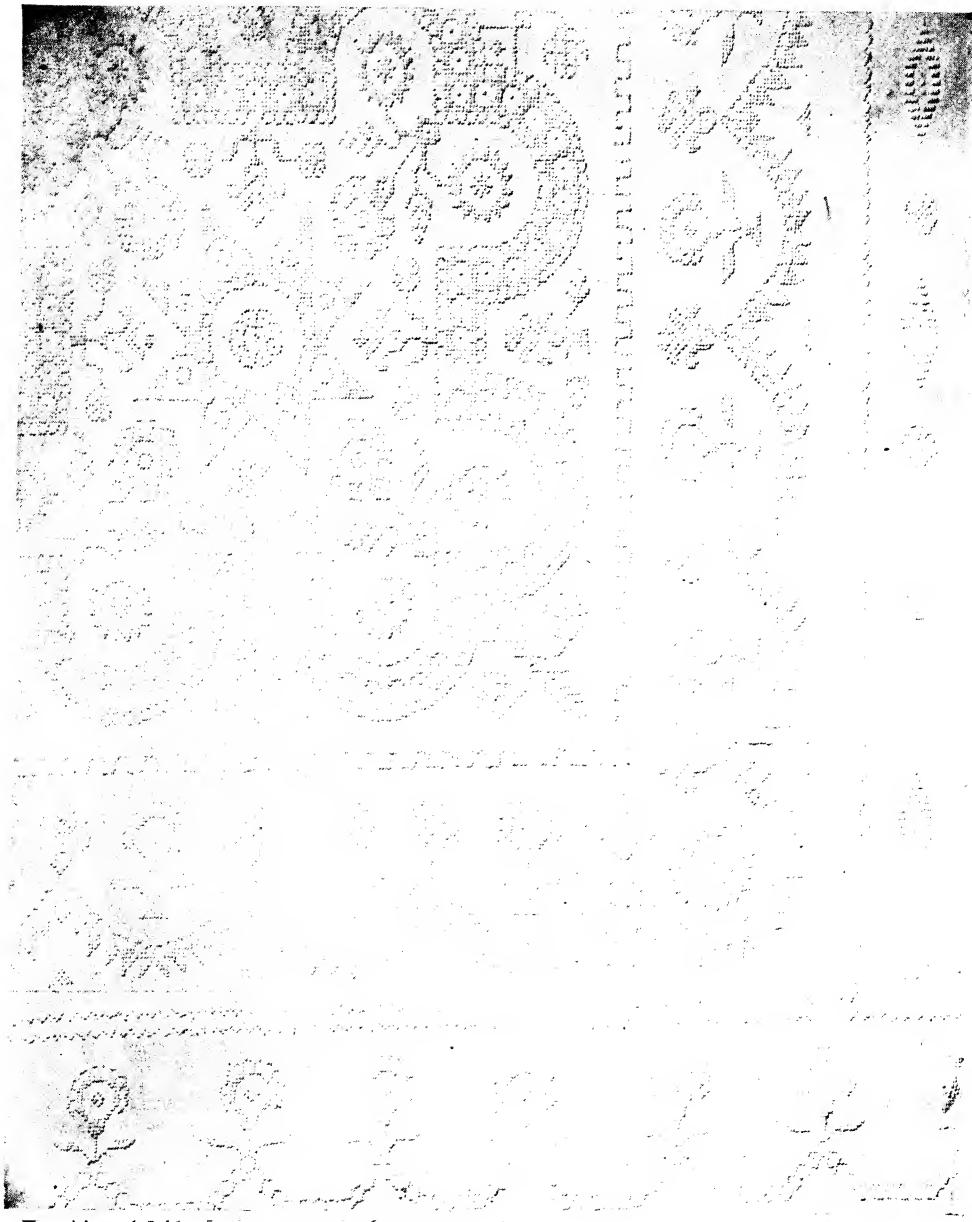
THE old white counterpanes are of interest to many. They are made in fine white cotton both for warp and for weft, and several different types are found. Apparently almost all work of this sort came from the South.

There are two kinds of tufted counterpanes. Many of the ancient ones as well as all the modern ones so widely sold of recent years are made with a hook. Woven tufted work is rare, but some fine old examples turn up now and then. The one illustrated is a piece of true tufted weaving, and comes from Pennsylvania.

The process of tufted weaving is a laborious one and few modern weavers care to undertake it. However, for the sake of completeness a description of the process follows:

The threading to be used may be any one of several small threadings, of which the one at No. 273 diagram is probably the most usual. Three treadles only are required—the two tabby treadles and the one that opens the tufting shed. Four tabby shots in fine weft are woven between tufting shots. The tufting shot is of a much heavier thread, usually a loosely twisted material like candle-wicking or fine "roving." This material is picked up in loops over a wire at the places where the tufts are required for the pattern. Four shots of fine tabby; another shot of heavy material and another wire, and so on. After four wires have been woven in the first wire may be withdrawn.

The small threadings on Diagram 46 may be used for linen weaving as well as for counterpanes. No. 272, for instance, is often used for toweling in our day, though this use appears to have been rare in ancient times. A special tie-up should be made as indicated. However, as it is sometimes difficult on a counterbalanced loom to open a good shed by sinking one harness and



(124) A fine piece of ancient tufted weaving.

raising three the tie-up may be made by tying the blank spaces instead of the Xs of the tie-up. This will cause the fabric to weave wrong side up, but it will be easier to open the sheds. Treadle as follows, weaving one shot of weft on each treadle as indicated: 2, 1, 2, 1, 2; 4, 3, 4, 3, 4.

For this weave the warp should be set closer in the reed than for tabby weaving and the same material should be used for both warp and weft.

The manner of using pattern No. 273 in the production of tufted work has already been discussed. It is also used in a good many other ways. When woven as a small diamond figure it was called "Bird-Eye" by the ancient weavers, and it is suitable for linen weaving as well as for the making of all wool blankets. A blanket in this weave arranged in a plaid effect of colors is one of the pieces in the collection of the Newark Museum. An entire book could be written on the various uses of this small threading, which is the base of a great deal of the finest Scandinavian work, but apparently in colonial America it was used only in the ways indicated above.

No. 274 is a true "basket weave" quite different from the unsatisfactory weave sometimes given that name among modern weavers. It should be treadled as follows: 1, 2, 3, 2, 1, 2, 3, 4, 5, 6, 5, 4, 5, 6 and repeat.

DIAGRAM 46 (125)

No. 275 produces a honeycomb effect sometimes used for blankets as well as for counterpanes. It should be treadled as follows: 1, 2, 3, 4, 5, 6, 5, 4, 3, 2, and repeat.

No. 276 is a pattern built on the huckaback type of fabric and is suitable for linen as well as for counterpanes. The same tie-up should be used as for No. 272 above.

Treadle the first figure as follows: 4, 3, 4, 2, 1, 2 repeated seven times. Treadle the second figure: 4, 3, 4, 3, 4, 2, 1, 2, 1, 2, 1, 2 repeated three times. The same threading may be woven in stripes if preferred by repeating over and over the treadling for the second figure.

No. 277 was taken from an ancient counterpane made in the South. The pattern is of lengthwise stripes in a raised effect. The reverse of the fabric is crossed by long skips of weft and is distinctly a "wrong" side. Any system

Series IX. Counterpane Patterns

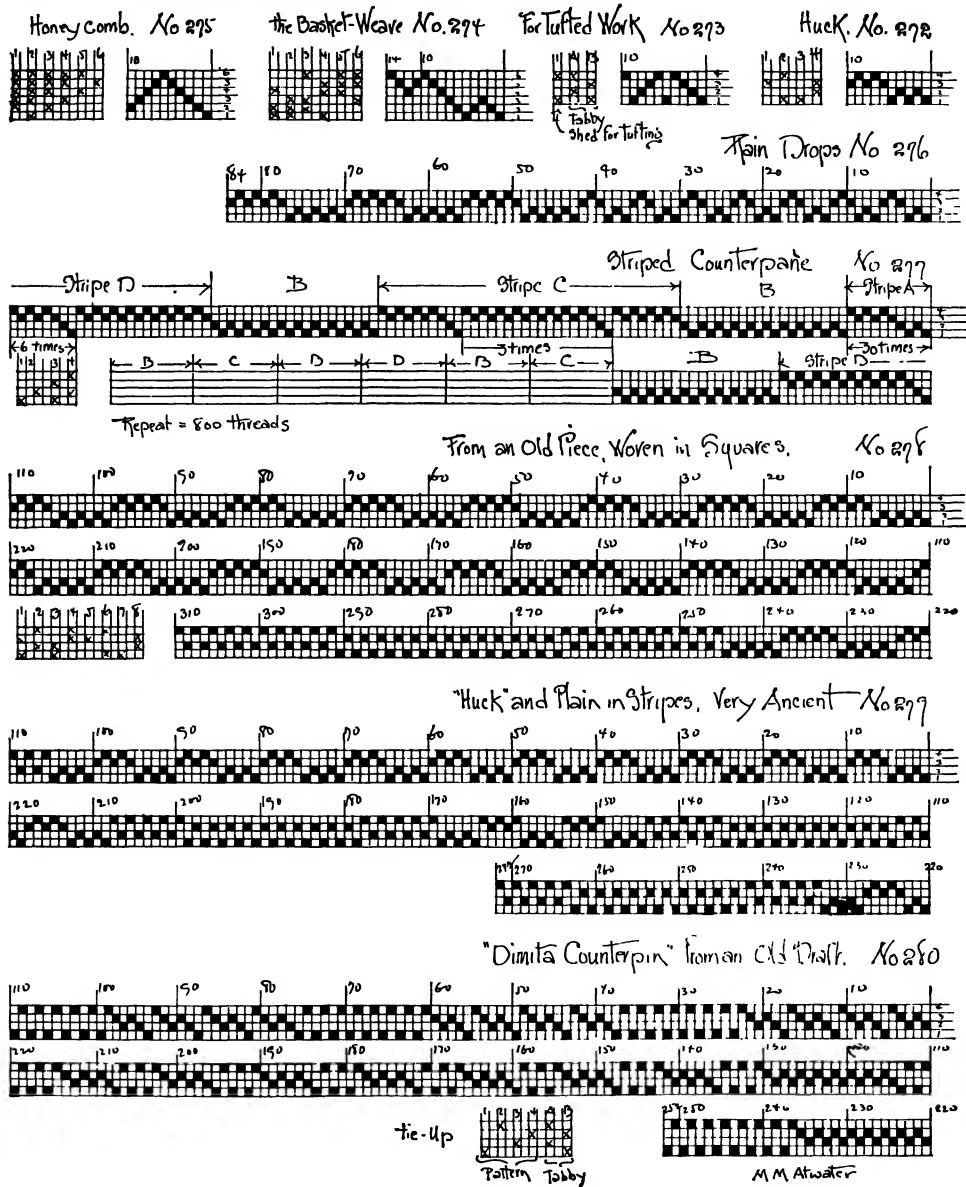


Diagram 46 (125)

of stripes can be arranged to weave in the manner of this pattern. In the ancient piece from which the threading was taken the A-stripe was repeated after the end of the repeat as given, and this made the center of the counterpane, giving 1100 threads in all. The warp is fine and set close in the reed.

Treadle: 1, 2, 3, 4, and repeat.

No. 278 is the draft of a handsome old counterpane with a pattern in squares of "huck," each square framed in by a heavy stripe and the squares separated by spaces of plain weaving, with a small figure of the Ms and Os type where the stripes of plain weaving cross. Unfortunately this piece, like No. 277, is unsatisfactory on the wrong side.

The tie-up requires eight treadles as noted on the draft. Treadle as follows:

"Huck" square 8, 7, 8, 7, 8, 7, 8, 6, 5, 6, 5, 6, 5, 6. Repeat 17 times.

End: 8, 7, 8, 7, 8, 7, 8.

Frame: 3, 4, 3, 4,—about 20 shots.

Center figure and plain stripes: 1, 2, 1, 2—30 shots.

Repeat frame: 3, 4, 3, 4,—20 shots.

No. 279 is similar to No. 278 and is woven on the same tie-up. It is from a much more ancient piece than No. 278, and as woven produces a striped effect of "huck" and plain weave. It could be woven in squares, in a fashion similar to the treadling of No. 278, but the arrangement of squares is of course different, there being one large square and two small ones in each repeat. Instead of being woven throughout with weft like the warp as was the case with No. 278, it is woven with a fine and a coarse weft as follows:

Treadles 2, 1, 2, 1, in fine material

Treadle 2, coarse

Treadles 4, 3, 4, 3, fine

Treadle 4 coarse.

This treadling is repeated for the entire length of the piece.

The pattern at No. 280 is taken from an ancient draft. No tie-up or treadling is given, but the intention was probably for weaving as follows. A coarse and a fine weft are used with a tie-up as given on the draft. (The wrong side of a fabric of this type is not good at all, being covered by loose skips.)

Treadle 1 and 2 alternately for 16 or 20 shots,—fine weft
A, Treadle B, in coarse weft
3 and 4 alternately for 16 or 20 shots,—fine weft
B and A, coarse weft

This treadling should be repeated for the entire length of the fabric. It produces an effect of stripes in a dimpled texture.

CHAPTER TWENTY

THE TWILLS

DIAGRAM 47 (126) gives a number of small weaves used chiefly for the weaving of materials for clothing, though several are also used for linen and blanket weaving and for other purposes. A book could well be written on this division of the work and the following drafts are no more than a representative selection, taken from ancient books and from old bits of weaving.

The simple twill weave, at No. 281, is the foundation of some of the most elaborate patterns and fabrics. The ten-treadle tie-up shown with the draft is not required for the weaving of all kinds of twill. The first four treadles are like the direct tie-up of a four-harness loom, while the last six treadles are like the ordinary six-treadle tie-up used in ordinary overshot weaving. The treadles may also be tied each to bring down three harnesses at once and to raise one. This may be accomplished on the ten-treadle tie-up above by using two treadles together:

For a warp-face twill treadle, 1, 2, 3, 4, and repeat.

For a half-and-half twill treadle, 5, 6, 7, 8.

For a weft-face twill treadle, 5&6, 6&7, 7&8, 1&8, using two treadles together.

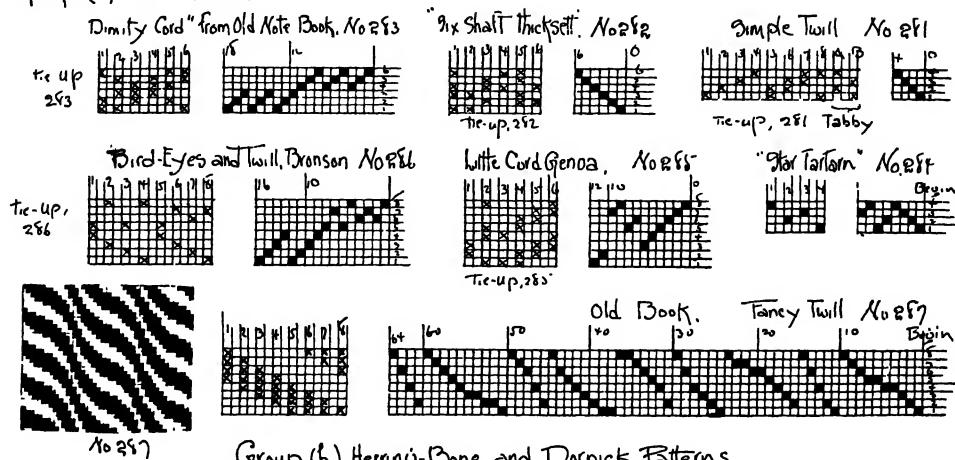
For a double twill weave with two weft yarns of different colors, light and dark, as follows: 5&6 dark, 1 light; 6&7 dark, 2 light; 7&8 dark, 3 light; 1&8 dark, 4 light. This will weave a material dark above and light underneath. By reversing the colors the opposite effect will be produced. The warp will show very little or not at all.

For a broken twill or satinet treadle: 5, 6, 8, 7 and repeat.

For a novelty twill treadle: 5, A, 7, B and repeat.

Series X Small Weaves

Group (a) Twill Patterns



Group (b) Herring-Bone and Dornick Patterns

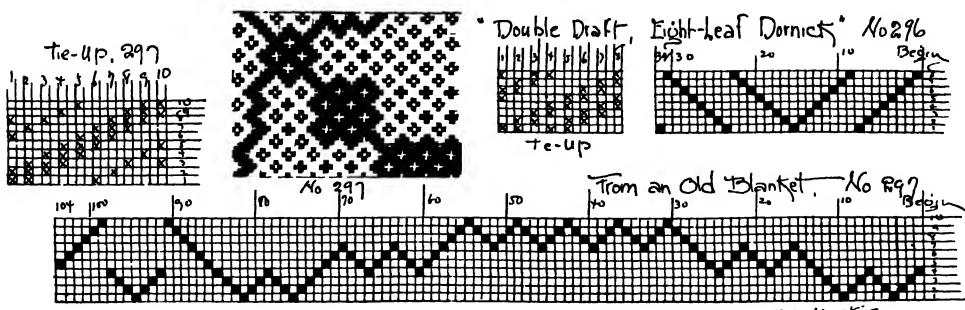
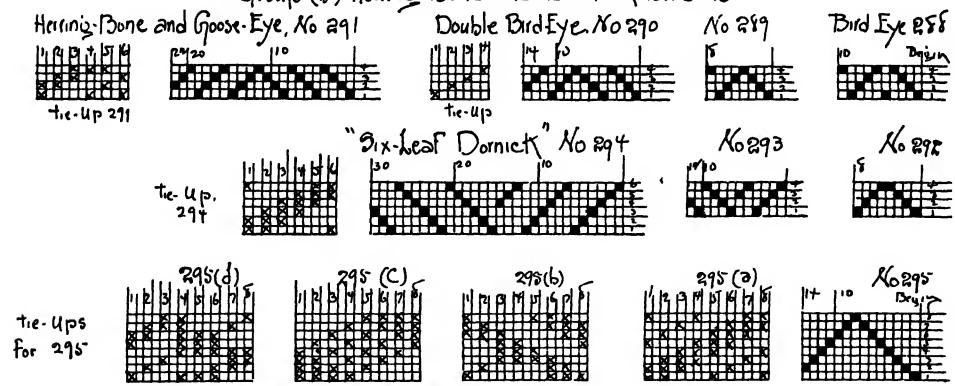


Diagram 47 (126)

According to the Bronson book "elastic cord" may be woven on the twill threading. Treadle 5, 7, 5, 7, 5&6, 5&8, 7&8, 6&7.

For a checked effect used sometimes in clothing warp in two colors and thread four threads of each color alternately. Weave with the same two colors, four shots of each.

First color, treadle 1, 2, 3, 4

Second color 5&6, 5&8, 7&8, 6&7.

No. 282. Few modern weavers, probably, will desire to weave corduroy; however, some may be curious as to the manner in which this was done in the old day. The draft for "Six-shaft thicksett" is taken from France's "Complete Guide, or The Web Analyzed."

Treadle 1, 2, 3, 4, 2, 5, 4, 6, 1, 4, 3, 6, 4, 5, 2, 4.

The process of finishing corduroy as described by an ancient writer has been given in another place.

No. 283 is a draft taken from an ancient notebook. It is to be treadled 1, 2, 3, 4, 5, 6, and repeat, and will weave lengthwise stripes of warp-face and weft-face twill. It may also be woven in squares by treadling 1, 2, 3, 1, 2, 3, 1, 2, 3, 4, 5, 6, 4, 5, 6, 4, 5, 6.

No. 284 is from the same old note-book and is marked "This is for boys' trousers, must be wrought with blue and white. The first four must be white. With four shots of each color."

Treadle 1, 2, 3, 4.

No. 285 is another draft from France's "Complete Guide." It is to be woven: 1, 2, 3, 4, 1, 5, 3, 6 and repeat.

No. 286 is from Bronson's "Assistant," where it is given the following notation: "The pattern of the cloth is formed of two colors in the warp drawn in 8 and 8. For the filling a different color. The Bird Eyes appear in the filling and the twill in the warp. Same fineness warp and weft. Sley 4 beers finer than for plain cloth."

The treadling is 1, 2, 3, 4, 5, 6, 7, 8.

No. 287 is a fancy twill, useful for some purposes. It comes, likewise, from an old book of drafts. Treadle: 1, 2, 3, 4, 5, 6, 7, 8.

Group (b).

Draft 288 is the same as draft 273 and is repeated here because used in a different way and with a different tie-up, as indicated after draft 290. It is used in linen weaving and for many other fabrics. No. 289 is a similar small figure and is given in our ancient note-book with this treadling: 4, 3, 2, 1, 2, 3, 4, 1, and repeat. No. 290 from the same source is treadled thus: 4, 3, 2, 1, 4, 3, 2, 1, 3, 2, 4, 1, 2, 3 and repeat.

No. 291 is a threading much used by itself and in combination, both for linen and for all-wool weaving. It is composed of three twills in each direction and should be woven on an ordinary four-harness tie-up, though as a rule the tabby treadles are not required. When this threading is treadled: 1, 2, 3, 4, 1, 2, 3, 4 repeated for the whole length of the fabric a "Herring-Bone" pattern is the result. When treadled "as drawn in"—1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 2, 1, 4, 3, 2, 1, 4, 3, 2—we have the pattern known as "Goose-Eye." These are too well known to need description.

No. 292 is the threading of a blanket in the Metropolitan Museum, New York. It is warped and woven in stripes of several colors and woven the same, producing a plaid arrangement. The tie-up is the same as for No. 291 and treadling is as follows:

3, 4, 3, 2, repeated four times
1, 4, 1, 2, repeated four times.

No. 293 is an ancient draft, tie-up as for No. 291 and treadling as follows: 3, 2, 1, 4, 3, 2, 1, 2, 3, 4, 1, 2 and repeat.

No. 294 is a similar pattern on six harnesses and is woven with a special tie-up as given, and treadled as follows:

(1, 2, 3, 4, 5, 6), twice, 1, 2, 3
(6, 5, 4, 3, 2, 1), twice, 6, 5, 4.

No. 295 is a simple "point" pattern on eight harnesses. "Point" weaving is a whole world in itself and only an indication can be given of its variety. Four tie-ups are given,—scores of variations are possible. Tie-up (a) should be treadled: 1, 2, 3, 4, 5, 6, 7, 8, 7, 6, 5, 4, 3, 2 and repeat. Tie-up (b) treadled in the same order, produces a pattern given with this notation in an old book: "Looks very neat in fine cloth." Tie-up (c) should be treadled in

the same order. The same tie-up with a plain eight-harness twill threading, and treadled, 1, 2, 3, 4, 5, 6, 7, 8, also produces an interesting effect. Tie-up (d) should also be treadled as (a). According to the old book, "this one makes a kind of star."

No. 296 is a sort of glorified "Goose-Eye." Many tie-ups are, of course, possible. Treadling: 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 7, 6, 5, 4, 3, 2, 1, 7, 6, 5, 4, 3, 2.

No. 297 is from an ancient blanket. The weave is similar to a well-known Scandinavian weave, valuable for linen weaving as well as for blankets. A small portion of the pattern is illustrated, showing the bird-eye effect. Any three-block pattern may be arranged in the same way on ten harnesses.

Treadle first block: 5, 4, 3, 2, 1, 2, 3, 4, 3, 2, 1, 2, 3, 4.

Treadle second block: 5, 6, 7, 6, 5, 4, 5, 6, 7, 6, 5, 4, 5, 6, 7.

Treadle third block: 8, 9, 10, 9, 8, 7, 8, 9, 10, etc., etc.

POSTSCRIPT

THE old days are over. We would not go back to them if we could. We live in a wonderful period of new birth, of awakening,—of new values and new standards, of a new art with new beauties. Art is no longer spoiled with a capital A and set apart in cold majesty like an alabaster angel on an onyx column. It has come back to the street corner and the fireside to be the companion of every day. How wonderful and how inspiring it is to have a part in the great new renaissance!

We weavers with our simple hand-looms, by going back to the fine clear beauty of the ancient days to make a new start, have thrown a bridge over the ugliness of the machine-made age just behind us and are free again of the ancient mysteries. It is not a dead art we are reviving among us, but a new and a growing art that will flower into who can tell what wonderful new blossoming?

NOTICE

In this book an attempt has been made to supply all essential information about American hand-weaving—in such detail that any one who wishes to try the adventure of this new-old art may do so with assurance of success, and without further instruction than may be found in these pages.

Beginners, however,—especially those who live far from the cities and have little opportunity to study the work of others—can be greatly assisted by an occasional criticism on their work, and are often glad to have some one to whom to refer the special problems that are bound to arise.

It is with the idea of adding to the usefulness of this book that a correspondence service of this sort is being arranged through the Shuttle-Craft Guild—Box 6, Cambridge, Massachusetts—to whom all inquiries should be directed. Criticisms will be given and technical questions will be answered by the author of this book, who has it very much at heart to make hand-weaving easy, profitable and delightful to all.

A set of sample-cards showing many types of yarn suitable for hand-weaving, in many colors, will be sent free of charge to purchasers of this book. Requests for cards should be addressed to the Shuttle-Craft Guild, Box 6, Cambridge, Massachusetts, or to the Shuttle-Craft Company, Inc., Abbott Building, Cambridge, Massachusetts.

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